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Missouri Breaks Wilderness Inventory

Cooperative Study

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Prepared by

Wilderness Institute

Montana Forest and Conservation Experiment Station

University of Montana

In Cooperation With

Bureau of Land Management
Montana

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MISSOURI BREAKS WILDERNESS INVENTORY

Cooperative Study

Prepared By

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INVENTORIED ROADLESS AREAS

Roadless Area Number	Name	Tentative Roadless Area Number	Page
1	Chimney Bend	38	3-2
2	Ervin Ridge	2	3-5
3	Dog Creek South	37	3-7
4	Woodhawk Creek	39	3-9
5	Bullwacker Creek	3	3-11
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8	Siparyann Creek	14	3-18
9	Little Rockies	15	3-19
10	Bitter Creek	71	3-21
11	Dry Lake	16	3-24
12	Indian Lake	17	3-26
13	Beuchamp Creek	18	3-28
14	Second Creek	19	3-30
15	Dry Fork	20	3-32
16	Sage Creek	21	3-34
17	Burnt Lodge	22	3-36
18	Carpenter Creek	23	3-39
19	Timber Creek	24	3-41
20	Grant Coulee	25	3-43
21	Marsh Hawk Hills	26	3-45
22	Dog Creek North	27-1	3-47
23	Sage Hen Creek	27-2	3-49
24	Lone Tree	28	3-51
25	Brazil Creek	29	3-53
26	South Fork Willow Creek	30	3-54
27	Square Creek	31	3-56
28	Lena Coulee	55	3-58
29	Duck Creek	32	3-59
30	Roosevelt Coulee	33	3-61
31	Beaver Creek	34	3-63
32	Bomber Coulee	35	3-65
33	Pines	36	3-67
34	Sand Arroyo	43	3-68
35	Hungry Creek	44	3-70
36	Sage Hen-Rock Cr. Divide	45	3-71
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39	Big Dry Arm	68	3-77
40	Nelson Creek	74	3-78
41	Ash Creek	41	3-80
42	Snap Ash	42	3-81
43	East Bridge Coulee	65a	3-83
44	Woody Flat	65	3-85
45	Hagen Gap	66	3-87
46	Trumbo Ranch	60	3-89
47	Maloney Hill	61	3-90
48	Crooked Creek	62	3-92
49	So. Fk. Little Squaw Cr.	49	3-94
50	North Squaw Creek	53	3-96
51	Lodgepole Creek	52	3-98
52	Germaine Coulee	48	3-99
53	Jack Lane Coulee	50	3-101
54	Squaw Creek	54	3-103
55	Seven Blackfoot	57	3-105
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CHAPTER 1

INTRODUCTION

The Wilderness Act of 1964 (P.L. 88-577) established a National Wilderness Preservation System (NWPS), but did not provide for including in this system any of the 470 million acres administered by the Bureau of Land Management (BLM). With passage of the Federal Land Policy and Management Act (FLPMA) (P.L. 94-579) in 1976, Congress gave the BLM authority to add areas to the National Wilderness Preservation System. Section 603 of FLPMA directed the Secretary of the Interior and the BLM to review all public land roadless areas greater than five thousand acres in size, as well as roadless islands having wilderness characteristics to determine the suitability or nonsuitability of each area or island for preservation as wilderness (see Appendix for Section 603 of FLPMA).

The Secretary of the Interior must report these suitability recommendations to the President by October 21, 1991, and within two years of that date the President must report final recommendations for Congressional action. The law also directs the Secretary of the Interior to report to the President by July 1, 1980, his recommendations on 55 existing BLM "primitive" and "natural" areas.

Although the BLM will carry out the wilderness review process until 1991, Director Frank Gregg has asked BLM personnel to complete the inventory phase by September 30, 1980. "There was a fear that BLM's wilderness program would prevent other uses from continuing for an extended period, even on lands that had no wilderness values." With a prompt inventory, it was reasoned, such lands could be removed from the restrictions imposed by Section 603 of FLPMA.

Criteria guidelines for the BLM wilderness review, set forth in the Wilderness Inventory Handbook (1978), state that:

> In determining these wilderness values, the law directs the Bureau to use the criteria given by Congress in the Wilderness Act of 1964. In Section 2(c) of that Act, Congress states that wilderness is essentially an area of undeveloped Federal land in a natural condition, without permanent improvements or human habitation, which has outstanding opportunities for solitude or a primitive and unconfined type of recreation. The area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Although the BLM has 470 million acres of land under its jurisdiction, no one can estimate accurately what percentage of that is "roadless." Much BLM land is fragmented and in small parcels; for those over 5,000 acres in size, the "roadless" criterion depends on the definition of a "road." The BLM Wilderness Inventory Handbook (1978) provides the following definition:

> The word "roadless" refers to the absence of roads which have been improved and maintained by mechanical means to insure relatively regular and continuous use A way maintained solely by the passage of vehicles does not constitute a road.

The BLM has stated that the wilderness review process will consist of three phases: inventory, study, and reporting to Congress. Their Wilderness Inventory Handbook describes these three phases as follows:

> a. Inventory--The inventory phase involves looking at the public lands to determine and locate the existence of areas containing wilderness resources that meet the criteria established by Congress. Such areas are identified as Wilderness Study Areas.
>
> b. Study--The study phase involves the process of determining, through careful analysis, which wilderness study areas will be recommended as suitable for wilderness designation and which will be recommended as non-suitable. These determinations, made through the BLM's

land use planning system, consider all values, resources, and uses of the public lands.

c. Reporting--The reporting phase consists of actually forwarding or reporting these suitable and non-suitable recommendations through the Secretary of the Interior and the President to the Congress. Mineral surveys required by law, environmental statements, and other data are also submitted with these recommendations.

The following report examines lands in the Missouri Breaks area for the inventory phase of this wilderness review process only.

Initially, tentative roadless areas greater than 5,000 acres in size were identified by BLM wilderness specialists. Field inventory consisted of determining: a) whether each area contains 5,000 acres of roadless land using the given definition of roads, and b) whether or not each area has sufficient wilderness characteristics to identify it as a wilderness study area. Areas less than 5,000 acres in size were also inventoried if they were contiguous to roadless land managed by another agency as wilderness or potential wilderness, or if with contiguous roadless land they had a combined acreage of over 5,000 acres. This decision process is shown schematically in Figure 1.

Unique areas less than 5,000 acres may also be studied if strong public support exists for their inclusion. Public participation in the decision process will be carried out by the BLM as described in their Wilderness Inventory Handbook (1978).

Missouri Breaks Wilderness Inventory

The boundaries for BLM lands inventoried in this study were determined by a 1975 out-of-court settlement (Natural Resource Defense Council, Inc. et. al. vs. Rogers C.B. Morton et.al.). This action committed the BLM to prepare 212 Environmental Impact Statements nationwide by FY 1988 on the impact of grazing on public lands. The impact statements will provide decisions on ultimate uses of those public lands, including currently roadless areas.

The Missouri Breaks study area is the first area in Montana that will have a completed impact statement. Although the final BLM wilderness inventory procedures had not been prepared, the Montana state office of the BLM decided a wilderness inventory of the roadless lands in the Missouri Breaks was a necessary component of the range environmental impact statement. Thus a concurrent study was

necessary to determine which areas will be released for intensive management and which will be further studied for wilderness. They contacted the Wilderness Institute in May, 1978, and a cooperative study between the Lewistown and Miles City districts and the Wilderness Institute was initiated.

The responsibilities of the Wilderness Institute were to:

1. provide guidance on field procedures and analytical methods to be used;
2. provide a training session for the BLM field study team;
3. provide follow-up review of field procedures;
4. summarize and analyze all field data and area reports;
5. analyze the results of the field inventory;
6. report the results of the wilderness inventory (by way of this report) by December 31, 1978.

The responsibilities of the BLM were to:

1. provide a field inventory team of five seasonal employees and two wilderness specialists;
2. delineate all "tentative roadless areas" on maps;
3. provide all necessary maps and air photos;
4. review all results and the draft of this report.

Although the BLM _Wilderness Inventory Handbook_ (1978) was not available until after completion of the field season, the methods used and procedures followed fit those in the handbook very closely. (Pages 10-15 of the handbook present the six steps to be used for wilderness inventory and identification of wilderness study areas).

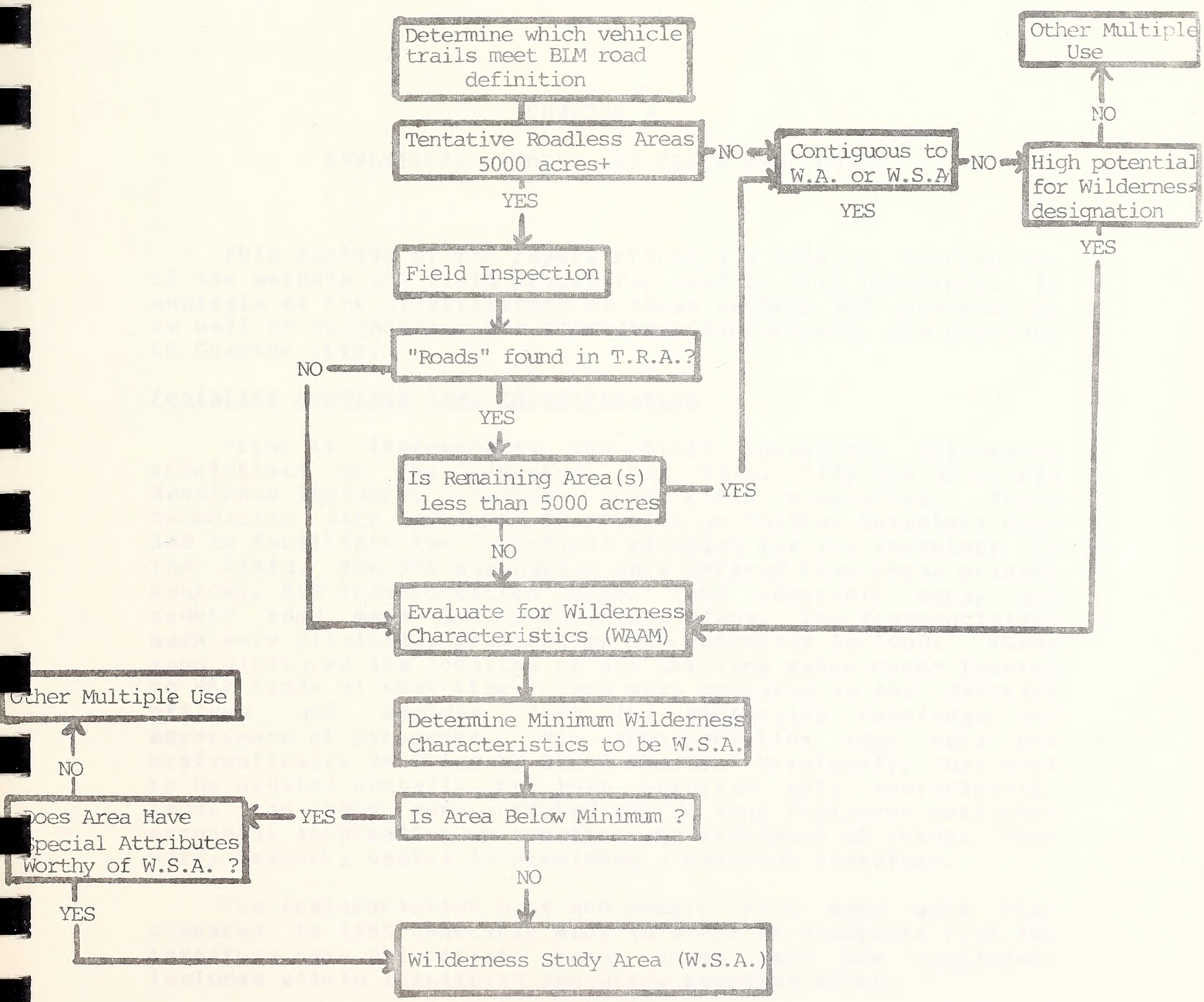
The identification of tentative roadless areas (TRAs) done by BLM wilderness specialists for this study, is basically the same as Step Two in the handbook. However, at this stage in our study, all inventory units identified as

"tentative roadless areas" were considered to potentially meet the criteria and therefore were subjected to more intensive inventory. All other public lands in the study area clearly did not meet the criteria, primarily because of size. We felt that all areas meeting the size criteria should be examined in the field.

Most of the work reported here involves Step Four in the handbook, the "intensive inventory" and "wilderness study area recommendation." Public involvement is clearly not the responsibility of the Wilderness Institute; however, we feel that Steps Two and Four should be conducted together. Step Four is, in part, a field checking or verification of decisions made in the office (Step Two) which are based on maps and transportation plans which may be outdated or in error. In our opinion, it would be a mistake to go to the public with information that has not been verified in the field. The field inspection and evaluation of wilderness characteristics can and should be done at the same time.

The chapter immediately following this introduction describes the methods and procedures used in the Missouri Breaks Wilderness Inventory. Individual descriptions and recommendations for all roadless areas inventoried follows in Chapter three. Chapter four contains a summary discussion of results for all areas and a comparison of their wilderness ratings and recommendations. Chapter five is a procedural evaluation of the inventory methods used in this study. (Since no precedent has been set for such inventory work, it was felt that such a critique would be useful for subsequent studies.) Supplemental information, including data from, and information about, the Wilderness Attribute Analysis Method (WAAM), is included in the appendices.

Figure 1
Missouri Breaks Wilderness Inventory Decision Process


Determine which vehicle trails meet BLM road definition
Tentative Roadless Areas 5000 acres+
NO
Contiguous to W.A. or W.S.A
NO
High potential for Wilderness designation
NO
Other Multiple Use
YES
YES
YES
Field Inspection
"Roads" found in T.R.A.?
NO
YES
Is Remaining Area(s) less than 5000 acres
YES
NO
Evaluate for Wilderness Characteristics (WAAM)
Determine Minimum Wilderness Characteristics to be W.S.A.
Other Multiple Use
NO
Does Area Have Special Attributes Worthy of W.S.A. ?
YES
Is Area Below Minimum ?
NO
YES
Wilderness Study Area (W.S.A.)

W.A.: Wilderness Area
W.S.A.: Wilderness Study Area
W.A.A.M.: Wilderness Attribute Analysis Method

CHAPTER 2

ANALYTICAL METHODS AND FIELD PROCEDURES

This section of the report provides a summary description of the methods and field procedures used in this inventory. An analysis of the effectiveness of these methods and procedures, as well as suggestions for procedural improvement, are provided in Chapter five.

Tentative Roadless Area Identification

Prior to implementing the field inventory, wilderness specialists on the Lewistown and Miles City BLM districts developed tentative roadless area (TRA) boundaries. These boundaries were developed to provide an initial inventory base and to facilitate the logistical planning for the inventory in the field. The TRA boundaries were derived from three primary sources, BLM transportation maps, land ownership maps, and county road maps and maintenance plans. The transportation maps were originally prepared by BLM employees in 1968. These maps displayed the location of all existing known roads located on BLM lands at that time. They were prepared in the district offices and derived from the collective knowledge and experience of personnel. The transportation maps were not systematically verified by field checks. Originally, they were to be updated annually, but this occurred only sporadically. Thus, the maps were outdated and in many instances contained erroneous information on location and existence of roads. They were, however, useful in providing a baseline inventory.

The transportation maps and county road maps were then compared to land ownership maps in order to eliminate from the inventory base all private lands which were not completely included within identified tentative roadless areas.

In order to document subsequent boundary alterations and to facilitate public review of this inventory, we have delineated both the preliminary tentative roadless area boundaries and the final recommended roadless area boundary on the maps preceding each individual area description in Chapter three. A narrative rationale for all boundary adjustments is also included in the appropriate roadless area descriptions.

Roadless Area Physical Descriptions

A physical description, in narrative form, was developed for every roadless area following an on-the-ground inventory. When possible, the information obtained from the on-site inventory was supplemented with data from office research and personal conversations with BLM employees and local landowners. These narratives provide a verbal picture of the area, as well as documenting all human developments and identifying unique features such as cultural and historic sites. The components of these physical descriptions were consistently applied to all areas and are listed below:

1. Location of roadless area.
2. Access
3. Physiographic Features (e.g., topography, aspect, unique features, drainage patterNS, etc.)
4. Vegetation (i.e., grassland, forested)
5. Human Developments (i.e., vehicle trails, roads, water conservation developments, mineral exploration, recreational use, private inholdings)
6. Wildlife
7. Land Use History (cultural and historic)

Vehicle Trail and Road Inventory

One of the most important aspects of this inventory was the field identification of the locations, conditions, and type of use received by vehicle trails in the roadless areas. This often involved determining if a vehicle trail met the BLM definition of a "road", in which case the boundary of an area was altered. Because the final Wilderness Inventory Handbook had not been released at the time this study was conducted, we used the BLM definition of a "road" from the BLM Draft Wilderness Review Procedures (1978). This document defines a road as:

> An access route which has been improved and maintained by using hand or power machinery or tools to insure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road.

Realizing that this road definition criterion was subject to revision, we developed a standard inventory form (Appendix B) to document the characteristics of all vehicle trails in a consistent manner. In addition to mapping and describing the location of all vehicle trails, a status determination was made on whether the vehicle trail appeared to be built, maintained, and/or used. These determinations were supplemented by comments clarifying the field judgements. In many cases, comments from BLM employees or local landowners were solicited to supplement these status judgements.

The following definitions were used for the status categories listed above:

> Built--Signs of construction with hand or power tools as indicated by the existence of culverts, full or partial bench cuts, borrow pits, cattle guards, etc.
>
> Maintained-- Where actions have been and will continue to be directed to physically keep the road open to traffic as evidenced by grading or other improvements made by mechanical means. Whenever a burm (ridge created by a roadcut) was encountered, its depth and extent of length (e.g., 4", 50%) were generally recorded in the comments section.
>
> Used-- A minimum of one series of vehicle trail segments extending from the roadless area boundary to each development (reservoirs, pumps, etc.) was considered to be "used". This field judgement was supplemented by information obtained from allottees and others intimately familiar with the area, however, this information is by no means complete. Additional public comments and further field work will be necessary in those areas recommended for Wilderness Study.

All inventoried vehicle trails were photo- documented to supplement field observations and to aid in the public involvement process. A photograph was generally taken of each inventoried vehicle trail's average status and the most developed portion.

A specific location and status have been included in this report only for those vehicle trails meeting the BLM "road" definition and requiring a roadless area boundary adjustment. All other documentation is available in the roadless area case files at the Lewistown and Miles City BLM District Offices.

Photo Documentation

Photographs were used primarily to document vehicle trails as described above. In addition, typical human developments and any unique features encountered were photographed. In many cases a series of general overview photos was taken to display the general character of an area. All photos were recorded in the field on a separate worksheet (Appendix B) and cross-referenced with other field notes.

Approximately one-half of the photos taken during this inventory were color slides and the other half color prints. Both Kodak Instamatics and 35mm cameras were used.

Wilderness Attributes Analysis Method

The task of identifying wilderness characteristics is difficult and subject to potential public controversy, because there is no consensus on the definition of wilderness attributes. The system we developed to analyze these attributes does not attempt to measure wilderness quality--that is a subjective concept that varies between individuals. The Wilderness Attribute Analysis Method (WAAM) only measures the relative presence of those wilderness attributes defined in Section 2(c) of the Wilderness Act of 1964.

The basic foundation of WAAM was derived from a similar inventory method--the Wilderness Attribute Rating System (WARS)--developed by the Forest Service in the RARE II process (a second generation roadless area review of National Forest lands). Although the major attributes defined in WARS are identical to those used in WAAM, we developed different sub-components to arrive at an overall rating for each attribute. The intent in redefining sub-components was to improve certain portions of the WARS rating system and to make it more applicable specifically to the region we inventoried.

Section 2(c) of the Wilderness Act of 1964 states:

> A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also

contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Four major attributes were derived from this definition to form the framework for the WAAM system. The major attributes and their sub-components are listed below:

1. Natural Integrity
   a. presence of human developments
   b. effect of impact on natural processes
   c. area on which natural integrity is impacted (% of total area)
   d. separability of impacted area from the whole area
   e. duration of impact if uncorrected
   f. feasibility of correcting the impact
2. Apparent Naturalness
   all human developments identified under Attribute 1, Natural Integrity, were judged on the degree they were apparent, from the perspective of an "average" visitor.
3. Outstanding Opportunities for Solitude
   a. size
   b. topographic screening
   c. vegetative screening
   d. distance from area core (approximate geographic center) to nearest all-weather road or occupied residence
   e. permanent off-site intrusions
4. Primitive Recreation Opportunity
   a. diversity
   b. challenge
   c. difficulty of travel within area
   d. difficulty of life support within area

In addition, supplemental wilderness attributes were documented. These include: endangered or threatened species of plants and animals, and special ecological, scenic, geological, and cultural features.

For each of the four major attributes, an overall numerical rating was derived on a scale of 1-7.

It is important to realize that only the four major attributes are based on the law or legislative history of the Wilderness Act. The sub-components used to derive an overall rating for each attribute were developed from the professional judgement of the authors. Thus, these sub-components are subject to different interpretations and we recommend that the BLM solicit public comment on the WAAM criteria. The WAAM handbook, utilized in this inventory, is reproduced in full in Appendix A.

Field Procedures

A five member inventory team of seasonal BLM employees working in conjunction with wilderness specialists on the Lewistown and Miles City Districts,conducted the inventory. Working teams of two spent an average of three days in each roadless area. Each working pair was periodically rotated to increase inter-team communication and insure inventory consistency.

The inventory was accomplished entirely on the ground with no aerial reconnaissance. Approximately 80 percent of the time spent on an individual roadless area involved reconnaissance of the area using 4-wheel drive pick-ups. A working team normally spent half of their time observing (either driving or hiking) and the other half mapping, photo documenting, and preparing field notes on vehicle trails, other human developments, and wilderness attributes. The remaining 20 percent of the time spent on each area was devoted to "office work" -writing a narrative and completing WAAM.

In many instances, a pre-inventory strategy was developed by each working pair prior to begining field work on an area. Due to time constraints, not every vehicle trail in every area was inventoried in its entirety. If previous knowledge indicated a particular vehicle trail might meet the BLM "road" definition, the team would investigate it first. In a few areas this was done and roads were located which split the roadless area into smaller pieces than five thousand acres. By definition these areas would not qualify for further wilderness study, so no further field inventory was necessary. In the process of field observation, working pairs would often locate barely discernible vehicle tracks which were obviously not constructed or maintained, but had been created by the passage of vehicles. If these tracks did not appear to lead through an area or to any human developments they were not always driven or hiked to their final destination.

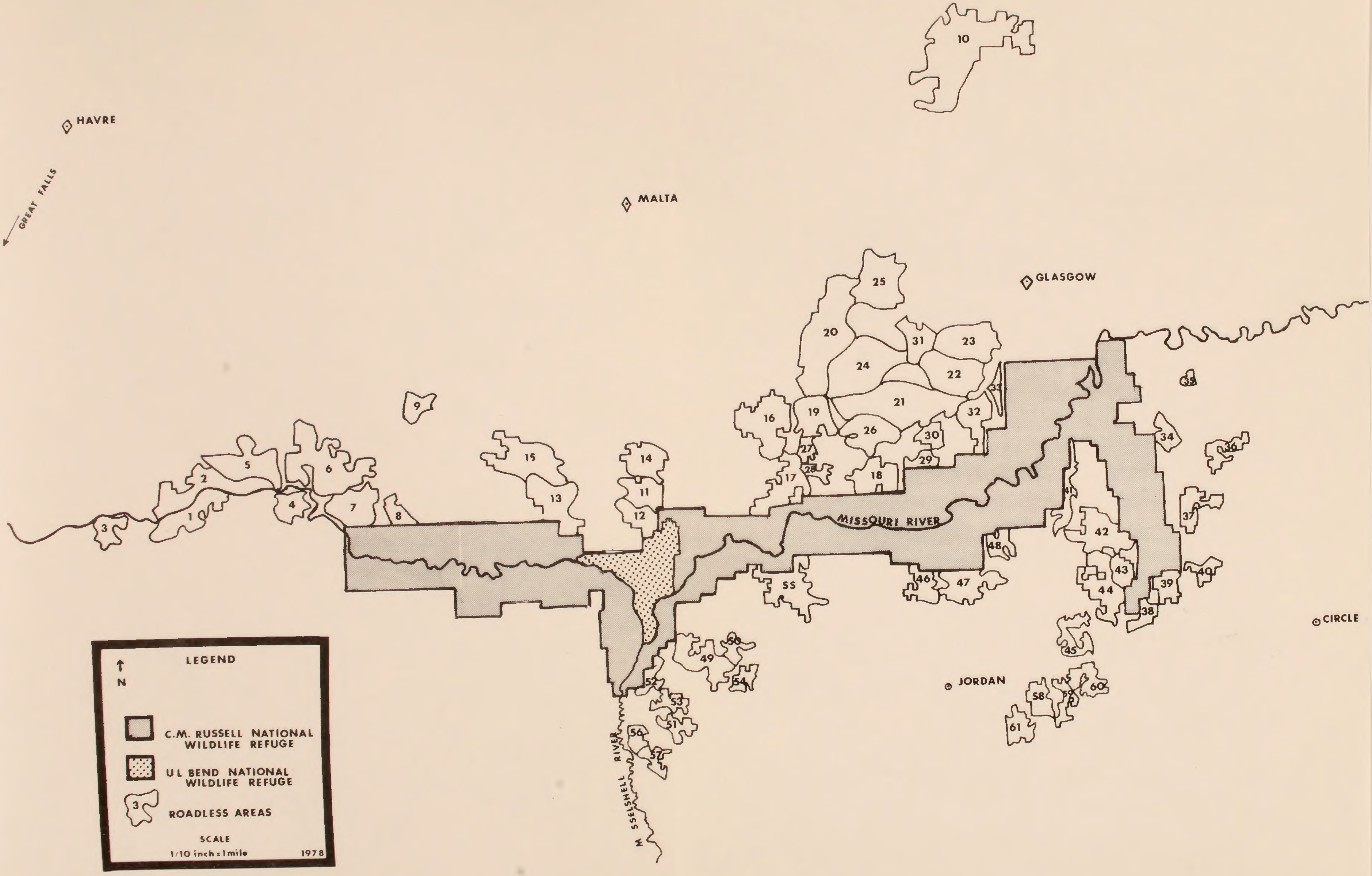
CHAPTER 3

ROADLESS AREA DESCRIPTIONS AND RECOMMENDATIONS

This chapter includes individual descriptions and recommendations for the 61 roadless areas inventoried during this study.

Six of the areas were eliminated from further consideration because roads (meeting the BLM definition) dissect the areas into parcels less than five thousand acres (see Table 4.1). For each of these areas a map showing the location of boundary changes is included, as well as a narrative rationale for eliminating them from further consideration.

For each of the remaining 55 roadless areas, we have provided the following: map (showing both tentative roadless area boundaries and roadless area boundaries), physical description, summary of human developments, wilderness suitability analysis, and a recommendation for or against further wilderness study. We have also included a rationale for all boundary modifications resulting from the field inventory.


HAVRE
GREAT FALLS
MALTA
GLASGOW
JORDAN
CIRCLE
MISSOURI RIVER
MUSSELSHELL RIVER
LEGEND
N
C.M. RUSSELL NATIONAL WILDLIFE REFUGE
UL BEND NATIONAL WILDLIFE REFUGE
3
ROADLESS AREAS
SCALE
1/10 inch = 1 mile
1978
1
2
3
4
5
6
7
8
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15
16
17
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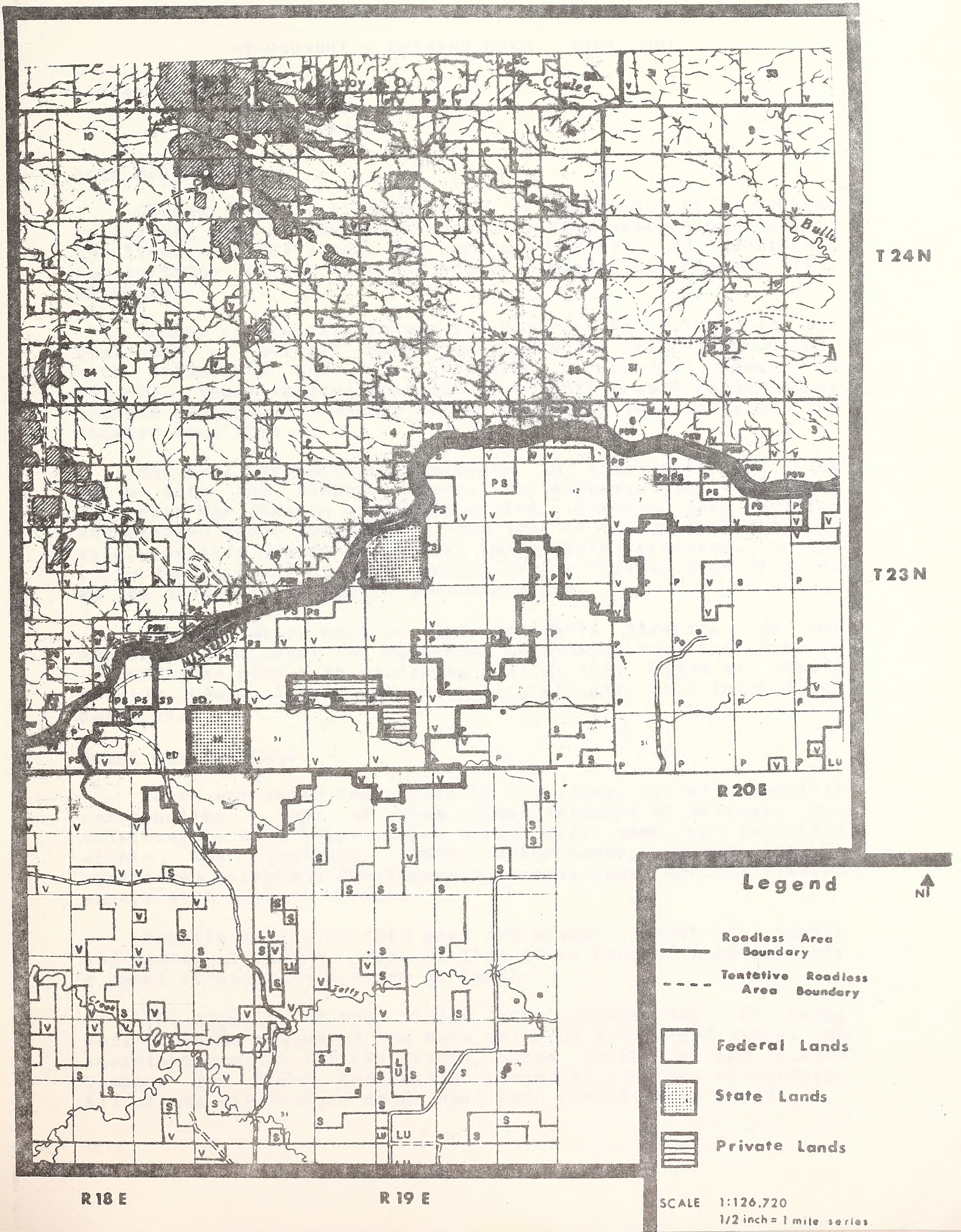
MT-060-001 CHIMNEY BEND


T24N
T23N
R18E
R19E
R20E
Missouri
Coulee
Bullw
Taffy
Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-001 - CHIMNEY BEND (TRA 38)

Acreage: 17,908 - Federal
640 - State
705 - Private

Area Description

Chimney Bend is 11 miles north of Winifred. It is bounded by private land on the south and east. The western boundary is the Stafford Ferry Road. The northern boundary is contiguous to portions of the Wild and Scenic Missouri River(scenic-1/3, wild-2/3).

Access to the site is via the Stafford Ferry Road on the west and by service roads constructed to drilled gas holes, both productive and dry, bulldozed by Fuelco Company in 1972-73. These vehicular trails branch off a road (upgraded by the gas companies to handle heavy equipment) just south of the Chimney Bend area.

The many intermittent drainages in this area all flow north into the Missouri River. The streams, when they flow, cut their way through permeable shales, leaving deep gullies and exposed gumbo formations. The land of the upper benches is mainly rolling breaks that offer topographic screening. In the foreground are the timbered breaks of the Chimney Bend area and in the distance the Judith Mountain Range.

The vegetation here is not extremely diverse. As one approaches the river the sagebrush grasslands turn into pockets of ponderosa pine with scattered Douglas fir. Bands of pines, growing along elevational and soil gradients, form interesting patterns.

Human Developments

There are seven reservoirs in this area, all of earth-fill construction. None of them shows evidence of overuse. Two water-savers with butyl rubber aprons will soon be installed within the boundary. These water-savers should not be considered permanent developments because they could be removed easily with minimal expense.

Vehicle trails in this area are minimal, both in number and degree of impact. Most of them enter federal land for only a short distance (1-2 miles or less).

The majority of the trails were constructed for heavy well-drilling equipment and have not been maintained since. We inventoried eight vehicle tracks, three built by the Fuelco Company and three informally created by ranchers or hunters. All of the constructed roads have been revegetating rapidly.

Three capped natural gas wells and seven dry wells are located in the area. These wells are not readily apparent, as the standard practice is to reseed the drill sites with natural vegetation. Although at present the capped wells do not affect the natural integrity of the area, a pipeline might be necessary in the future, and a proposal for such a pipeline has been submitted to the BLM by Fuelco Company. The pipeline would be a significant development in the area.

The Stafford Ferry, located on the western boundary, affects a few of the drainages in this area. Sounds resulting from the ferry operation can be heard from some distance away. This site is separable from the roadless area boundary.

Wilderness Suitability Analysis

The overall effect of human developments on the natural integrity of this area is very low. Most impacted areas would not be perceptible to the average visitor.

Some off-site impacts can be sensed from inside the area. Cultivated fields exist near the boundary and the activities at the Stafford Ferry (as well as the road leading to it) can be seen and heard. These off-site developments are not widespread in effect, however, and opportunities for solitude in the area as a whole are high.

This area has moderate primitive recreation potential due to a limited diversity of opportunities.

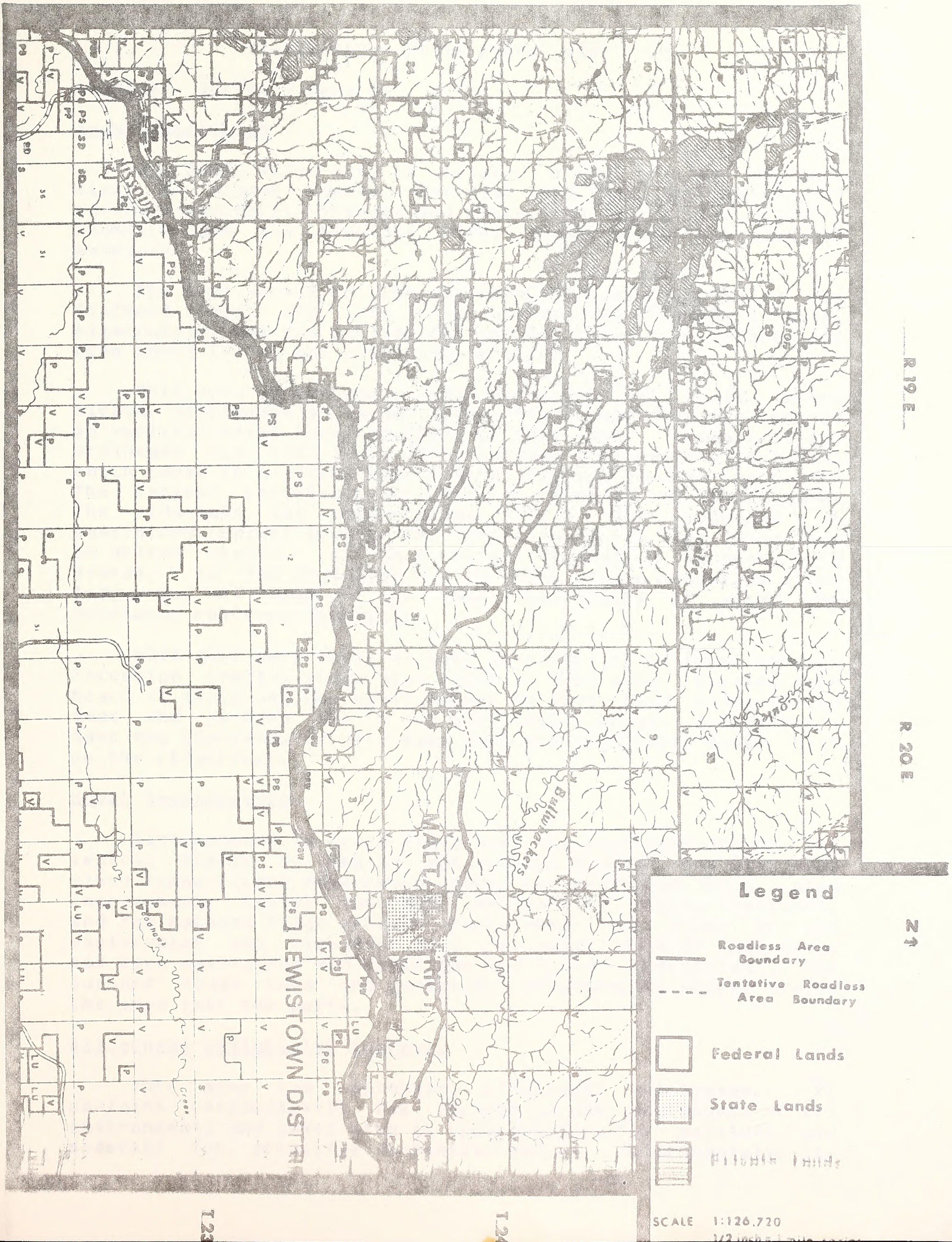
Recommendations

Chimney Bend poses a management enigma--how can one allow for the orderly development of the gas deposits which perhaps underlie its boundaries while still maintaining the untouched, primitive values which characterize the area? Because the final decision will require comparing and balancing the different resources involved, we recommend these lands for wilderness study status, so that all impacts on wilderness values may be properly evaluated and so the decision may be a function of carefully weighed benefits and losses. The area's wilderness values merit this careful consideration.

We also recommend a boundary adjustment to exclude the Stafford Ferry and its servicing county road. We further suggest that the area's eastern boundary not be placed at Section 7, T23N R20E, but rather be extended east to Section 10. The previous boundary follows a vehicle trail originally derived from the District's transportation plan and carries the Bureau number [6016-000]. This vehicle trail starts in back of Dick Knox's ranch buildings and heads north through Tom Ford's private lands before reaching public domain in Sections 7 and 8. Because the trail is closed off by a locked gate, relatively regular public use is not ensured, and all reports indicate that the way is impassable through federal land. We

therefore feel that [6016-000] does not meet the definition of a road and should not be considered as the eastern boundary.

MT-060-002 ERVIN RIDGE


MISSOURI
LEWISTOWN DISTRICT
MALTA DISTRICT
Bullwhackers
R.19 E.
R 20 E.
T.23
T.24
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
N

MT-060-002 - ERVIN RIDGE (TRA 2)

Acreage: 22,016 - Federal

Area Description

The Ervin Ridge area is located north of the Missouri River in Blaine County. The Gist Road forms the eastern and northern boundary; private and state land forms the western boundary and the Missouri River flows along the southern boundary.

The best access is from Winifred, crossing the river via Stafford Ferry and then east via Pendell or Barnard Ridge. Alternately, one can go from Chinook to Lone Tree Bench and from there follow the same ridge routes.

This area is extremely dissected along the river, where strata of Bearpaw shale and Judith River sandstone are exposed on vertical cliff faces hundreds of feet high. Between these drainages are thin ridge lines heading northwest-to-southeast which taper to a narrow edge before dropping towards the river. The largest ridgelines are Barnard, Pendell, and Coal Ridges. The ridgetops and south-facing slopes are composed of shortgrass prairie down to the active erosional zone (more than 30 degree slope). At this point vegetation becomes very sparse. In the drainages and on north slopes ponderosa pine, lodgepole, and Douglas fir trace the route of water and nutrients coursing downhill.

Mule deer were seen, as well as a herd of 14 feral horses. Porcupine feeding areas also exist in this area. Coyotes were heard at night and one would expect to also find white-tailed deer and perhaps elk in the more broken areas. A Swainson's hawk was observed, as were sage hens and sharptail hawks high on the ridgelines.

Human Developments

Disturbances in Ervin Ridge area are localized around the vehicle trails on Pendell and Barnard Ridges. The Gist Road along Pendell-Lone Tree-Ervin Ridges is scattered with range improvements (water reservoir and salt and oiling stations), and the Barnard Ridge vehicle trail group has signs of gas exploration and livestock use. The major trail in this group has been maintained and meets the BLM "road" definition. The Barnard Ridge Road and associated developments nearly divide the area into two parts.

Wilderness Suitability Analysis

This area has impressive wilderness attributes. It contains comparatively few impacts on the naturalness of its environment, and rates high in opportunities for solitude and moderate for primitive recreation values. Unfortunately, its

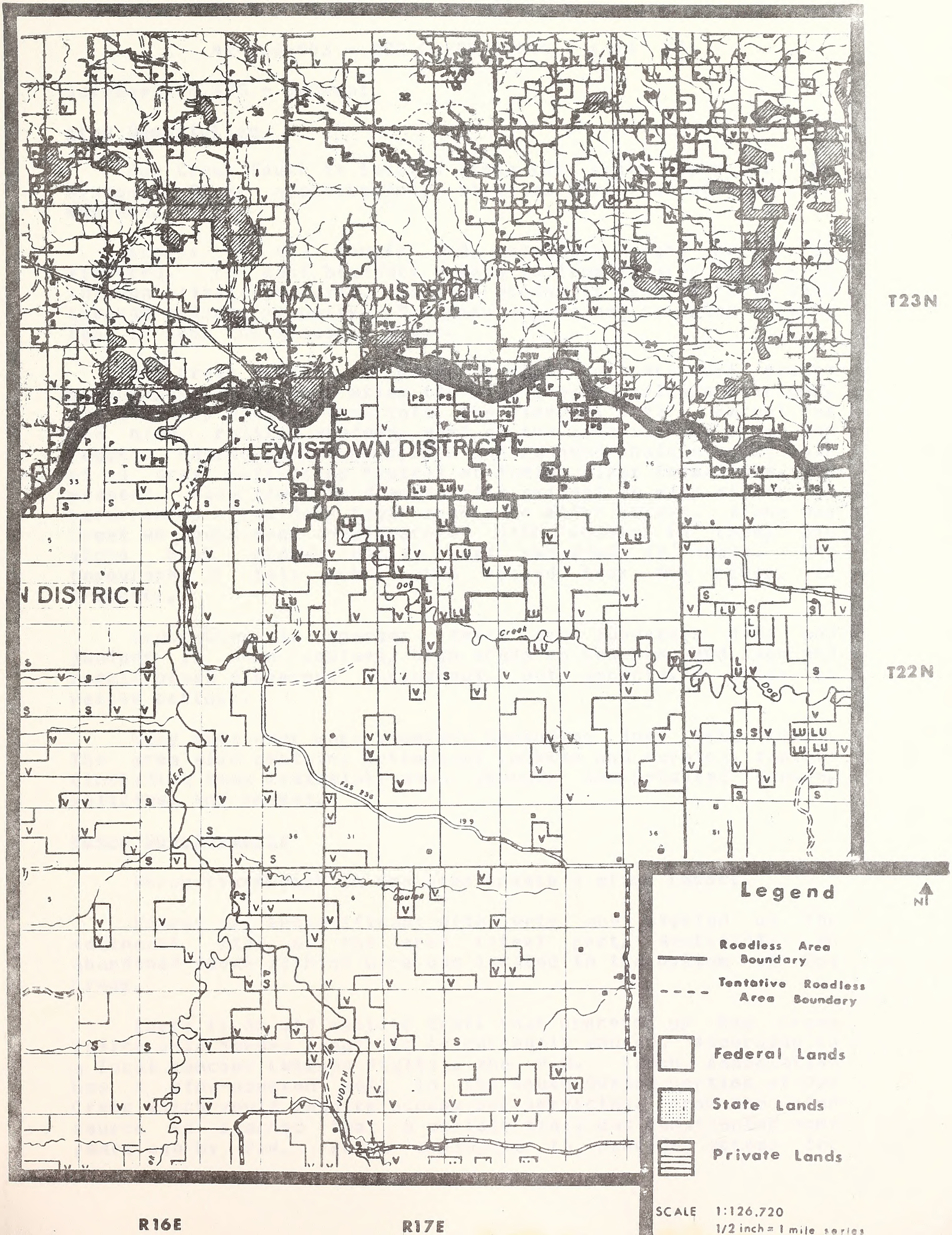
impacts are localized along Barnard Ridge to such a degree that wilderness values are compromised there. The prepared drill pad and heavy vehicle use, along with two abandoned stock reservoirs and a rehabilitating dry gas hole are a significant impact on these few acres of land.

Recommendations

We recommend Ervin Ridge for further wilderness study because of its significant wilderness attributes.

During wilderness study of this area, evaluators should be aware of the fact that Ervin Ridge is directly across the Missouri River from the Chimney Bend area (60-001). A boundary change is necessary to exclude the road along Barnard Ridge from this area. The continuity of federal land is broken where this road ends in a state section, T24N, R19E, Section 36 (this state section is contiguous to the southern boundary). This situation might require splitting the area into two parts during wilderness study.

MT-060-003 DOG CREEK SOUTH


MALTA DISTRICT
LEWISTOWN DISTRICT
N DISTRICT
T23N
T22N
R16E
R17E
Dog Creek
Judith River
FAS 236
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-060-003 - DOG CREEK SOUTH (TRA 37)

Acreage: 6,425 - Federal

Area Description

Dog Creek South is located along the south bank of the Missouri River approximately 14 miles northwest of Winifred, Montana.

Access is via county and secondary roads north of Winifred. The east boundary access is from Whiskey River Road through private property. Western access is from PN Ferry Road through private property. The only access not crossing private land is from the Missouri River.

Dog Creek South is a prime example of Missouri Breaks topography. For four miles its high grassy plateaus overlook, and its deep coulees flow into, the Missouri River. Except for the high, rolling meadows, most of the area is very steep and rugged. Jagged sandstone cliffs and rounded shale slopes, both of a grey buff-color typical of Judith River formations, are present. Mass slump is dramatically evident in many stages of occurrence, from deep fault cracks to major slides. Along Dog Creek we found many conglomerates with shells in them, and along high ridges shells were imbedded in shale. The topography of this area, when viewed from the river, is dramatic.

Vegetation is sparse; there are ponderosa pine and juniper in some coulees, high grass on benches, and sage and rabbit brush dispersed throughout, but especially thick in valley bottoms.

Many mule deer were sighted, including does with twins. The area also contains cottontail rabbits and coyotes, raptors (including many kestrels), sage grouse, sharp-tailed grouse, pelicans, and snakes.

Human Developments

Three reservoirs in the area create a minor impact.

Fences are insignificant with only one sighted on the southeast side of the area (steel post, 4-strand). An abandoned fence with no wire was located in the bottom of Dog Creek.

There is an old vehicle trail that proceeds up Dog Creek Valley onto deeded land; it is currently unused. According to a local rancher (Wilson Stultz), the P.N. Ranch Association has a wind-powered well in the south deeded portion of Dog Creek which would require access for servicing. From the same source we learned that a vehicle trail was constructed some years ago by P.N. Ranch employees to provide access for

driving cattle up to the reservoir. An alternate route using horses also exists and is used. On the whole, vehicle tracks within the area are substantially unnoticeable.

From most high points in the area one can see cultivated fields, distant ranch buildings, and lights at night.

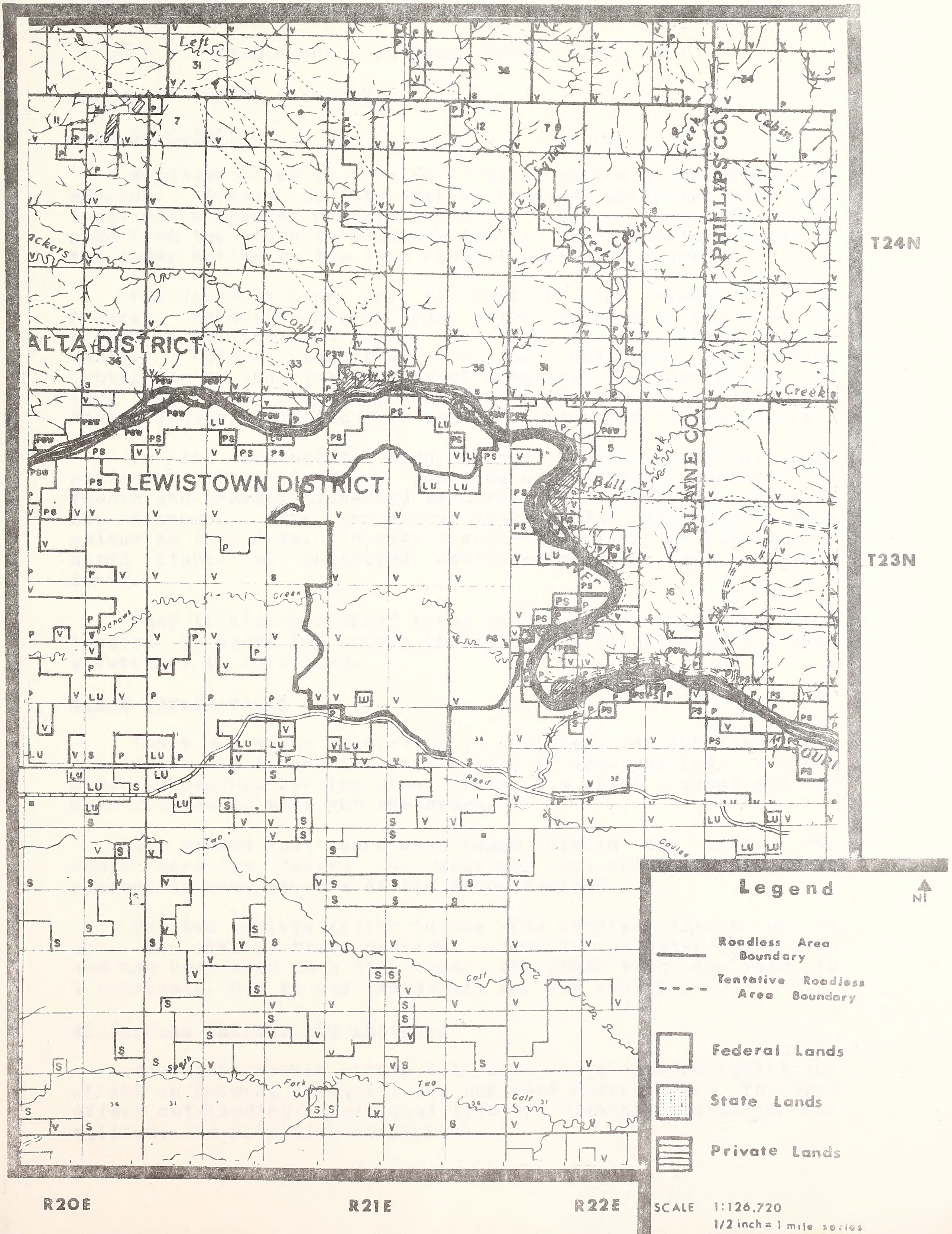
Wilderness Suitability Analysis

This area exhibits a high degree of naturalness and apparent naturalness. Outstanding opportunities for solitude and primitive recreation also exist. Its location, contiguous to the Missouri River, is important from an historical perspective--Lewis and Clark made one of their camps directly across the river from the mouth of Dog Creek. The area also possesses outstanding scenic beauty.

Recommendations

Because of its outstanding wilderness attributes, we strongly recommend Dog Creek South for further wilderness study.

MT-060-004 WOODHAWK CREEK


T24N
T23N
R20E
R21E
R22E
ALTA DISTRICT
LEWISTOWN DISTRICT
PHILLIPS CO.
BLAINE CO.
Left
Squaw Creek
Cabin Creek
Cabin
Creek
Bull Creek
Coulee
Woodhawk Creek
Road
Two Calf Coulee
Calf
South Fork Two Calf
MISSOURI
PSW
PS
LU
P
V
S
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-004 - WOODHAWK CREEK (TRA 39)

Acreage: 10,357 - Federal

Area Description

Woodhawk Creek is located 22 miles northeast of Winifred, Montana. Access to this area is from the northwest on a jeep trail which crosses private property; on a seasonal county road from the south to Woodhawk Trail; or from private land in the river bottom in the east central part of the area.

The Woodhawk Creek area is part of the Missouri River Breaks. Woodhawk Creek, the major drainage in the area, is framed by multicolored layers of rock in the steep coulee walls. Folded sandstone cliffs, outcrops, and ridges contribute to the rich variety of scenery. To the north and east the land drops off abruptly at the edge of the Missouri River, sedately winding five hundred feet below rugged bluffs.

In the southwest, high grassy benches covered with ponderosa pine, juniper, and Douglas fir become increasingly eroded and heavily dissected as creeks and tributaries approach the Missouri. The ponderosa pine/Douglas fir forests seem unique in this area. In some places--especially on the gentler north slopes of sheltered coulees--these forests are very dense.

Many lightning-scarred trees and several burned areas (the largest is about 160 acres) indicate that wildfire is a common occurrence in this area.

Human Developments

There are seven reservoirs in the area. We observed four, all small and inconspicuously placed in deep gullies. A water saver is planned for the area. This is a pilot project and has been visited by many BLM employees.

One wooden post fence was found within the area. The whole area is leased for grazing, but probably only 60-70 percent is used because of the steep coulees.

The two vehicle trails in the area receive little or no use. One vehicle trail provides access to the water saver site and has been used as a fire road. The other track may lead to a reservoir, but it was impassable for our vehicle.

Wilderness Suitability Analysis

The disturbances within this area have an insignificant effect on natural integrity and apparent naturalness. The area offers outstanding scenic qualities and high opportunities for solitude and primitive recreation.

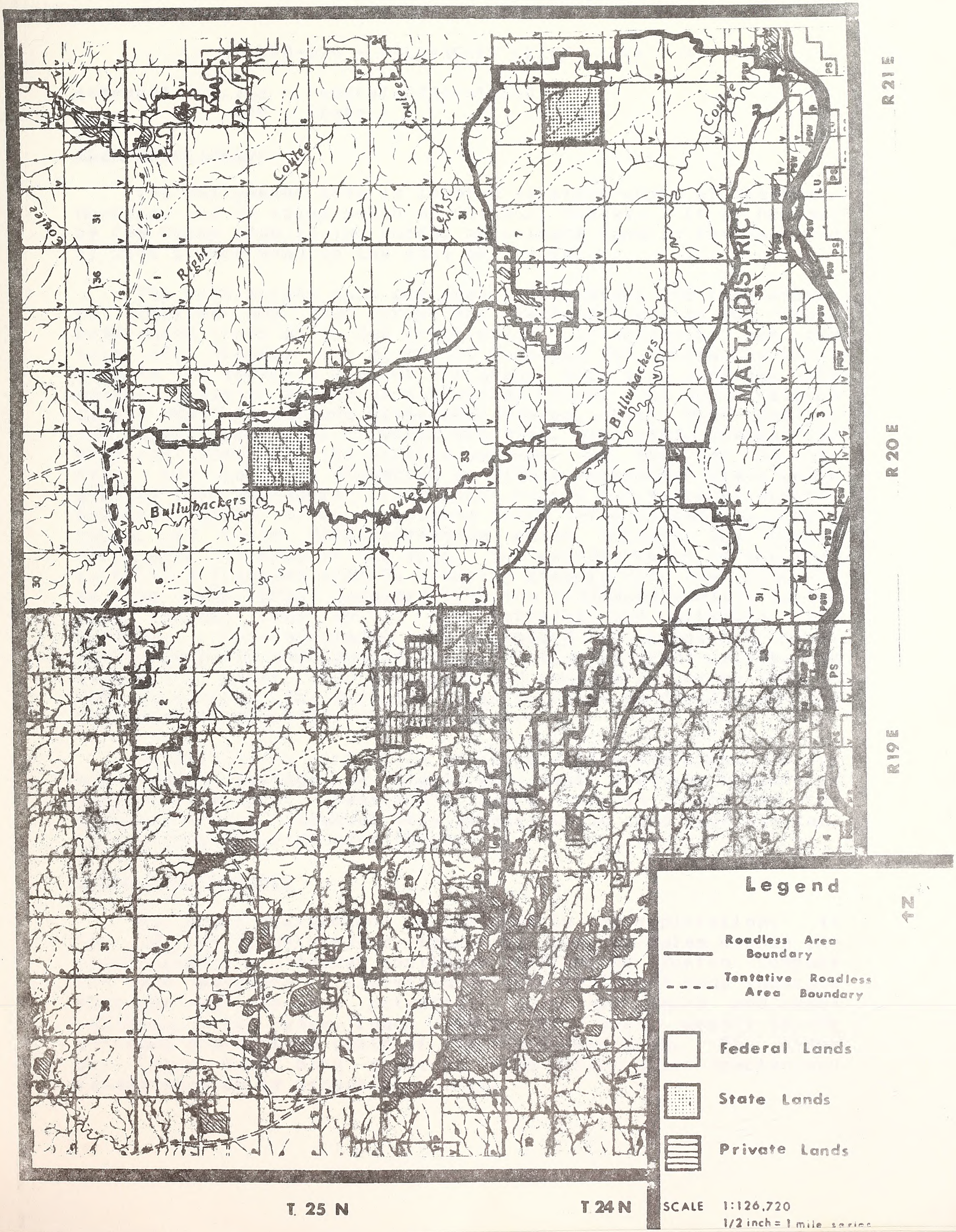
Recommendations

Because of its outstanding wilderness characteristics, we strongly recommend Woodhawk Creek for further wilderness study.

Also, this area is important as an extension of the Wild and Scenic River portion of the

Missouri River. The Woodhawk Creek drainage is contiguous to this river corridor and is part of the Missouri River ecosystem.

MT-060-005 BULLWACKER


Coulee
Coulee
Coulee
Right
Left
Bullwhackers
Coulee
Bullwhackers
Coulee
MALTA DISTRICT
R21E
R20E
R19E
T. 25 N
T 24 N
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
N
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-005 - BULLWACKER CREEK (TRA 3)

Acreage: 27,382 - Federal (TRA-51,660)
640 - State

Area Description

The Bullwacker area is located 30 miles west of Zortman, Montana, and 50 miles south of Chinook, Montana. It is bounded by Cow Creek Road to the north, by private land to the west and by Gist Branch Road to the east and south.

The best access into the area is via State 236 from Hilger to Winifred and then across the Stafford Ferry to the county road which leads up to Cow Creek Road. Alternately, one can turn off Highway 191 at the DY Junction and follow Cow Creek Road to the northern edge of the area. This area includes the entire drainage system of Bullwacker Creek. The upper reaches of the drainage include Bullwacker Coulee, Coal Mine Coulee, and Lion Coulee, all of which are deep, dissected, breaks-type erosional gouges in the earth's surface. On the far eastern side, the land is dissected by Little Bullwacker Creek which empties into Bullwacker Creek (just before the Missouri River). Exposed Judith River sandstone forms lofty pinnacles, capped rocks, and color differentiation which offsets the rugged topography of most of the area. The western third of the area is rolling flatland prairie dropping steeply into the coulees. As the land slopes downward from the grassland prairie in the west, forests crop up in the nutrient and moisture rich coulees. The woodlands are composed of ponderosa pine, lodgepole pine, and Douglas fir. In the steepest areas, no vegetation other than sagebrush and some forbs can be seen on the dry slopes. The forested zones increase in density as the drainages approach the Missouri River.

We observed a herd of 13 antelope within the area. Coyote were heard howling at night and their scat was noticed in various locations. Swainson's hawks can be found in the flatter areas. Although this appears to be good deer habitat, we saw none while we were there.

Human Developments

The major disturbance in the area is gas exploration. As far as can be determined, there are only dry holes within the area currently, although continued interest by Fuelco Company and the presence of as-yet-undrilled bulldozed pads indicate that the area has gas potential. Six dry holes and four platform sites were found within the area, mostly in the northern and western parts of the Bullwacker area. The older dry holes have been reseeded with native grass species and rehabilitation is progressing well.

Nineteen small reservoirs dot the area. Most are old, located mainly in the flatter sections in the northwest part of the area. Approximately 20 miles of fence, both 3-wire steel post and wooden post type,are sited within the Bullwacker area to control cattle grazing on the allotments. There is an old, almost unnoticeable, salvage logging site in this area.

Sixteen vehicular trails were found during the inventory. The portion of Gist Branch Road traversing Ervin Ridge, although it has not had recent grazing, shows cattleguards, culverts, and drainage channelers which ensure that relatively regular travel can take place. Those trails which meet the BLM definition of a "road" are mainly associated with gas exploration and are located in the northwest portions of the area. One of these roads extends one mile into the area, accessing a recent gas dry hole. Another extends into a private inholding (1,000) acres, and has been used substantially for hauling in heavy gas exploration equipment. From this road jut two more major roads, one straight east and the other east and then south along the west side of Bullwacker Creek. These roads and concurrent gas dry holes, platforms, and the possibility of a producing well creates a major impact on natural integrity in the northern and northwestern portions of the area.

Wilderness Suitability Analysis

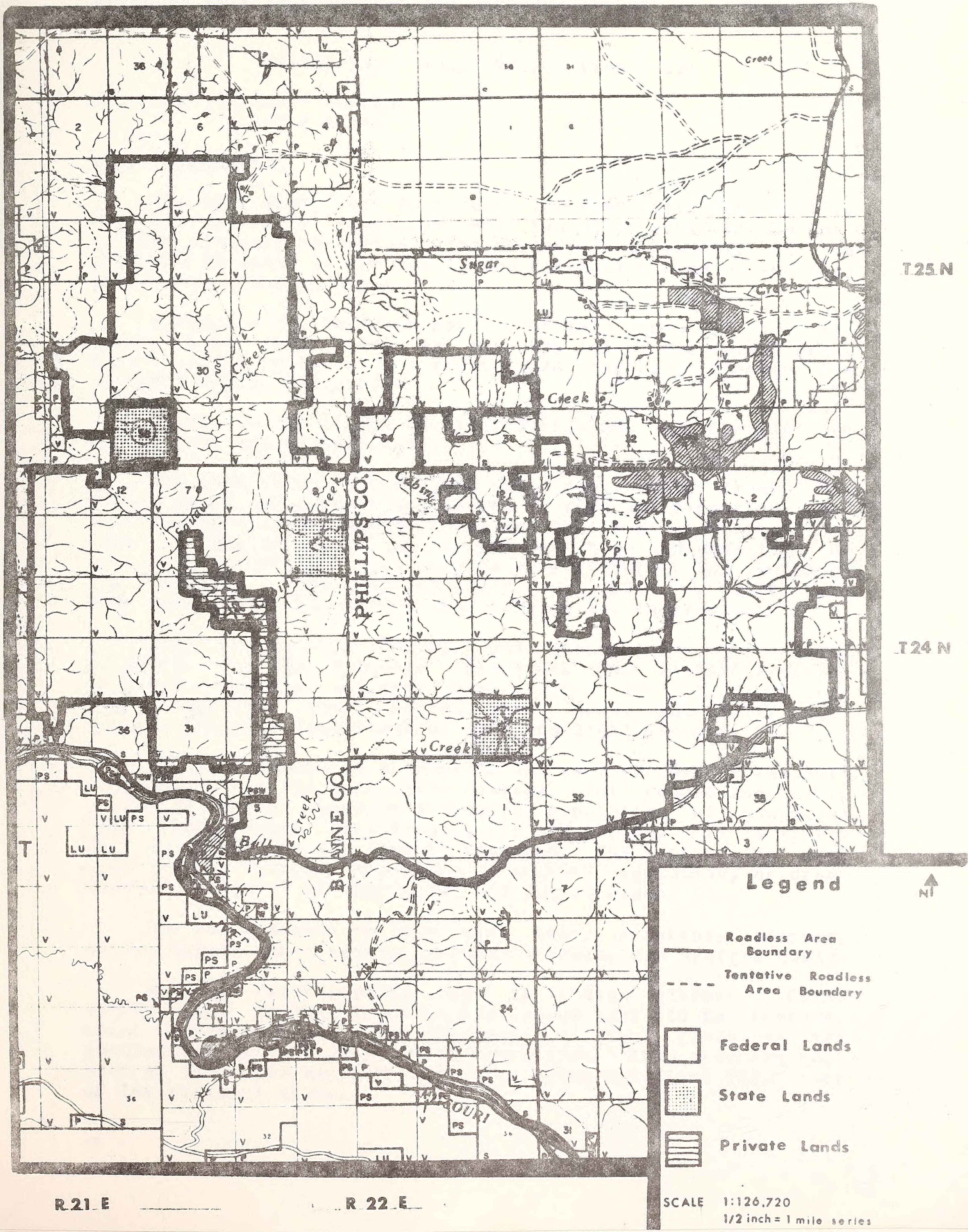
With the boundary change eliminating the roads in this area, an area of largely pristine land (26,000 acres) is left intact. This area encompasses the best part of Bullwacker; the coulee and creek breaks areas and the sandstone outcrops and erosion drainages near Little Bullwacker Creek. These lands are densely forested in the bottoms and on the north slopes, providing excellent vegetative screening. This screening, combined with the topographical variation and the area's large size, creates outstanding opportunities for solitude. The degree of diversity and the challenges involved in traversing the area allows a moderate opportunity for primitive recreation. These values are enhanced by the geological and scenic attributes found in the Bullwacker area.

Recommendations

Bullwacker Creek's high wilderness characteristics and generally untouched character makes it a prime candidate for wilderness study status.

Because of the presence of several roads providing access to private lands and gas exploration sites, the boundary is revised to exclude the northwestern portion of this area (see map).

MT-060-006 BULL CREEK


T.25 N
T.24 N
R.21 E
R.22 E
PHILLIPS CO.
BLAINE CO.
Sugar Creek
Creek
Cabin Creek
Bull Creek
MISSOURI
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-006 - BULL CREEK (TRA 12)

Acreage: 74,995 - Federal
1,280 - State

Area Description

The Bull Creek Area is located thirteen miles southeast of the Little Rocky Mountains and two miles south of the Fort Belknap Indian Reservation. The southwestern boundary of the area is adjacent to the Cow Island Recreation Area on the Wild and Scenic Missouri River.

Access to the southern portion of this area is via the county road that leads to the Cow Island Recreation Area. Access to the north is by a county road that leads through the Mitchell Ranch. This road

allows access to the Shetland Divide and Bull Creek or to Jones Ridge and Winter Creek.

The many steep cliffs along Bull Creek, Winter Creek, Hay Coulee and Cabin Creek are varied in type and formation. The red sandstone of the Judith Formation that runs along the west side of Winter Creek is 100-200 feet high and parallels the creek for 2-3 miles. This rock is very colorful and suitable for climbing. The wind and water have carved the cliffs into many castle-like formations that inspire the imagination.

Bull Creek, Hay Coulee, and others have the white sandstone of the Virgelle Formation. This sandstone offers good color contrast and many sheer cliffs. The Bull Creek area also contains many varied gumbo domes and hills with interesting clay formations of dark and light stripes.

The high bluebunch wheatgrass and sage benches of the Bull Creek area drop off into steep coulees. This rugged and highly dissected terrain supports a sizable population of ponderosa pine interspersed with Douglas fir and juniper. It is likely that 40 percent of the area is timbered. The rest of the area consists of slopes too steep to support vegetation, or creek bottoms dominated by sage brush and rabbit brush.

One could expect to see mule deer, antelope, coyotes, golden eagle, marsh hawks, Swainson's hawks, and sparrow hawks.

The Bull Creek area is rich in Indian history. Chief Joseph went up Bull Creek on his famous last bid for freedom. Local people indicated the presence of tipi rings on the benches and buffalo jumps along the cliffs. This area has been used by the white man since the time Lewis and Clark first came up the Missouri River.

At the turn of the century, the Winter Creek drainage was used for catching wild horses. The box canyon that is on Winter Creek formed an ideal and natural corral called Horse Thief Pass.

The area is known to contain historic sites, some of which have been destroyed by road construction. Historic rocks can be found along the Shetland Divide with names etched in them as long ago as the 1800's.

Human Developments

Seven reservoirs, 1-3 acres in size, are located within the area. Due to the rugged topography, most of them are inconspicuous.

Approximately ten miles of fences cross the area. All are either 3-4-strand wood post or BLM standard 4-strand metal post.

Several signs of mineral exploration were seen in the area. A platform for a drilling rig was prepared along the Shetland Divide. The rig never reached this area, the site was recontoured and revegetated.

Two dry holes (areas void of vegetation with an upright metal pole) were also found.

All of the area is leased for grazing. The only impacts are seen around reservoirs where the ground is trampled and bare.

Twenty-five segments of vehicle trails, comprising about fifteen miles, reach into the area. Two-thirds of these segments were not constructed or maintained, and the remaining one-third were built and receive little or no use or maintenance.

These impacts have an insignificant effect on the Bull Creek area. The most visible impacts (reservoirs, mineral exploration areas, and some of the vehicle trails) affect only a very small area in their immediate vicinity.

Wilderness Suitability Analysis

The Bull Creek area remains wild--much the same as it was before the white man. While working in this area we discovered very few intrusions; the few that are there have a very low impact on the natural integrity of the area.

Opportunities for primitive recreation in this area are exceptional. Possible activities include backpacking, photography, wildlife observation, rockclimbing, fishing, hunting, historical and archaeological exploration, all in an area with rich diversity. The Cow Island Recreation Area is

located at the southwest corner of the area, and six miles of the Missouri Wild and Scenic River are contiguous to the area.

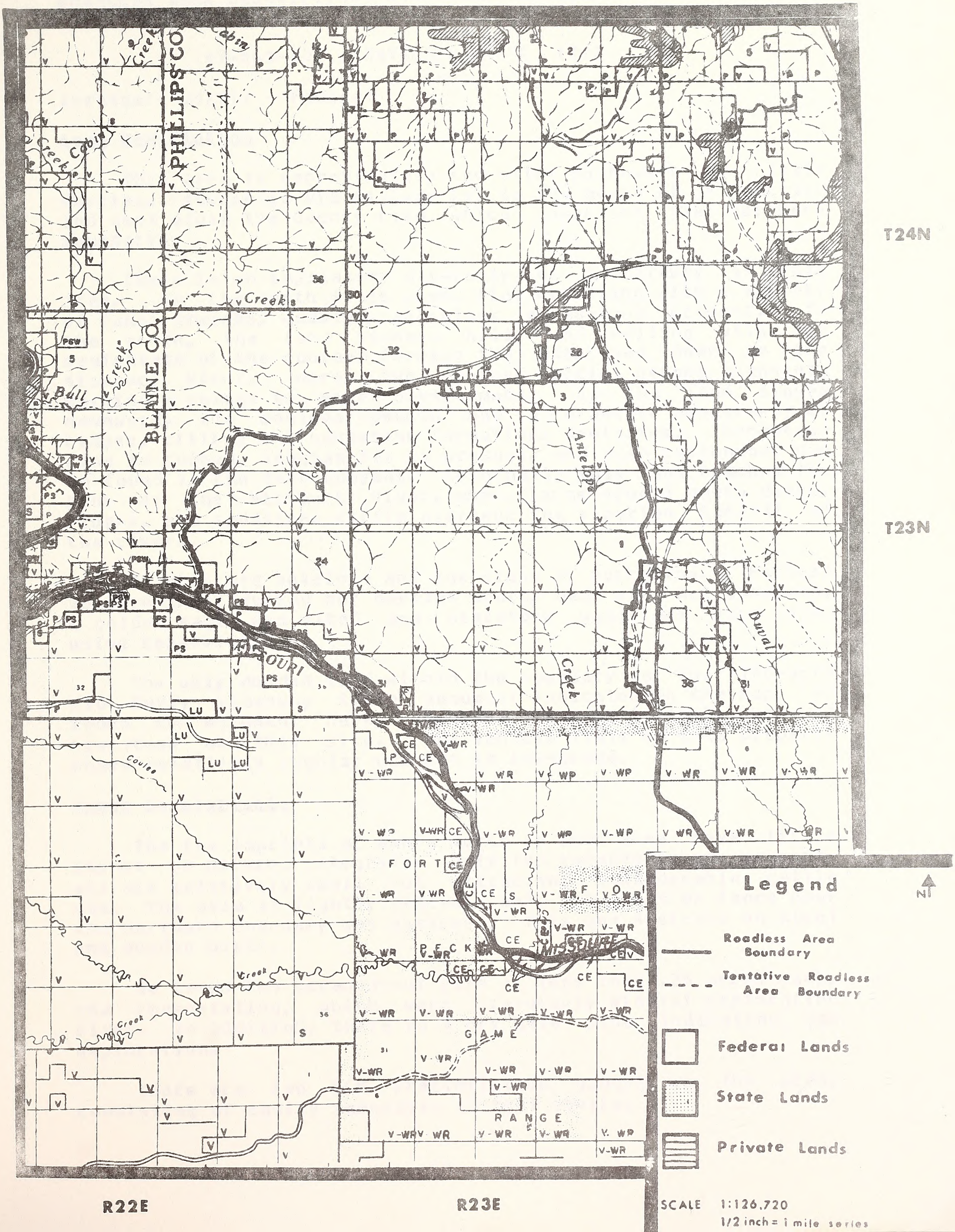
The size of the Bull Creek area (48,000 acres) and its varied topography and vegetation enhance opportunities for solitude.

Many cultural and historic features are located within the area, including tipi rings, buffalo jumps, and historic campsites of Lewis and Clark along the Missouri.

Recommendations

Because of its diversity and many special attributes, we strongly recommend this area for Wilderness study.

MT-060-007 ANTELOPE CREEK


PHILLIPS CO.
BLAINE CO.
Cabin Creek
Bull Creek
Antelope Creek
Duval
MISSOURI
FORT PECK GAME RANGE
Coulee
Creek
T24N
T23N
R22E
R23E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-007 - ANTELOPE CREEK (TRA 13)

Acreage: 20,311 - Federal

Area Description

This area is approximately ten miles southwest of Little Rockies. Access is via Highway 191 to the north at DY Junction and west along the county road which comprises the northern boundary.

There is an impressive diversity of topography in this area. To the north it is open, flat grassland with a variety of range grasses, gumweed, and black greasewood present. To the south, the land becomes hilly and rolling with the beginnings of the coulees forming the watershed down to the Missouri River. Here, two juniper species become abundant, marking a change in micro-environment. As the land slopes downward, the coulees deepen and a dramatic topography of ridges, cliffs, and sandstone formations dominates. Ponderosa pine is common, Douglas fir is present, and even cottonwood can be found in the deep canyons. Eventually this land reaches the bank of the Missouri River, where large eroded gumbo domes, ridges, and sandstone cliffs overlook the riparian habitat of the river.

We observed antelope and saw signs of porcupine. Because we were there during hot daytime hours, deer were not observed. A golden eagle was sited and migratory waterfowl were seen using reservoirs.

The only deeded land within the boundary is the 160-acre Kid Curry Hideaway State Monument indicated on the map. We found no monument here, however; there is only an old homestead at this site. The vehicle trail to this property shows relatively regular use but is low-grade.

Human Developments

The few imprints of man's works in this area have little impact on natural integrity. Only ten reservoirs are present, all are relatively small but attracting considerable cattle use. The area is lightly fenced; only 2.5 miles of fence near the northern boundary was observed. This was 4-strand on steel and wooden posts.

We found two scraped-out pits of less than .25 acres each, now revegetating, which were presumably mineral exploration sites. In addition, there is a dry hole pipe indicating gas exploration.

There are two BLM precipitation gauges in the area, consisting of easily removable 12-foot towers.

Grazing impacts are evident in the northern portion of the area, especially around reservoirs (as indicated by grass length and type and the presence of unpalatable disturbance species including gumweed and black greasewood). Trails are evident to the south and into the breaks, but vegetation in these areas seems only lightly impacted.

Wilderness Suitability Analysis

Antelope Creek has extremely high wilderness values. Opportunities for solitude are abundant. Both off-site and on-site intrusions are few. The area's size, its dissected topography, stands of ponderosa pine and shaded ravines with Douglas fir all insure solitude.

Scenic values are striking. The area provides views into the Missouri Breaks and of the Little Rockies across miles of flat rangeland, as well as interesting micro-environments of hidden canyons and sandstone formations.

The area invites exploration and could support many visitors hiking, exploring, observing wildlife, photographing, hunting, and even fishing or swimming in the Missouri River.

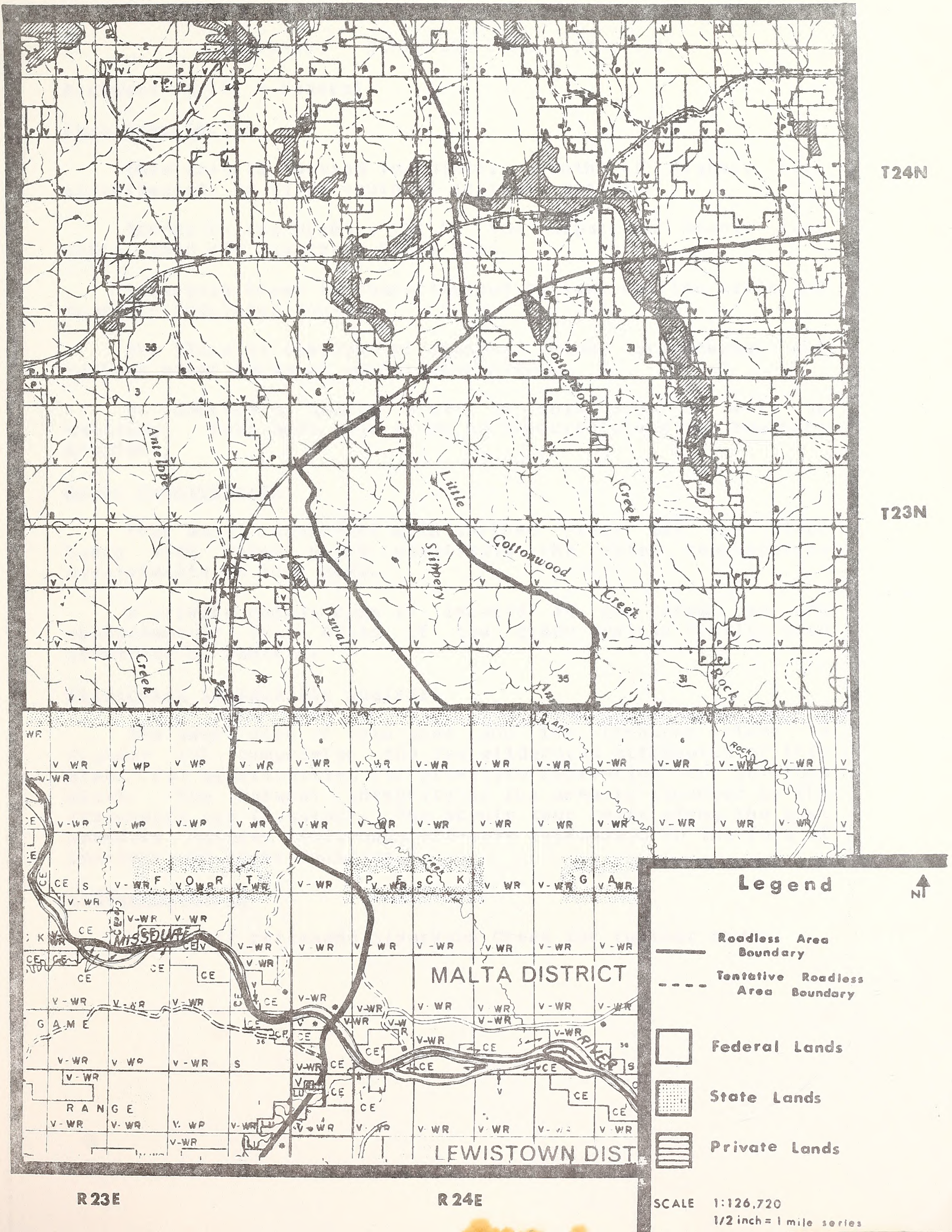
The Kid Curry Hideaway and associated deeded land within a mile of the boundary present the only significant intrusion in the area.

This area shares 4.5 miles of contiguous boundary with CMR National Wildlife Refuge. The CMR lands have been recommended for wilderness study and comprise an additional 8,000+ acres of high quality wildland.

Recommendations

Due to its outstanding wilderness attributes and its location contiguous to CMR lands recommended for wilderness study, we highly recommend Antelope Creek for further wilderness study.

MT-060-008 SIPARYANN CREEK


T24N
T23N
R23E
R24E
Antelope
Little
Slippery
Duval
Creek
Cottonwood
Creek
Cottonwood Creek
Ann
Rock
Creek
FORT PECK GAME RANGE
MISSOURI RIVER
MALTA DISTRICT
LEWISTOWN DIST
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT060-008 - SIPARYANN CREEK (TRA 14)

Acreage: 7,081 - Federal

Area Description

This area is located immediately south of Highway 191, approximately 10 miles south of Zortman, Montana.

Access is via Highway 191 to the Siparyann Scenic Tour Route, then via Siparyann Ridge Road.

Siparyann Creek is characterized by low, rolling hills and sparsely vegetated coulees.

The flora is composed of grasses, sage, greasewood, and various other forms of low-growing plants.

We observed a golden eagle in this area as well as antelope. Some mule deer might be expected along the southern boundary.

Human Developments

Four small reservoirs with earthen dikes and two stock tanks with water pipes constitute the water conservation developments in this area.

A private cattle camp is located in the area, as are approximately four miles of low grade vehicle trails, used primarily by hunters.

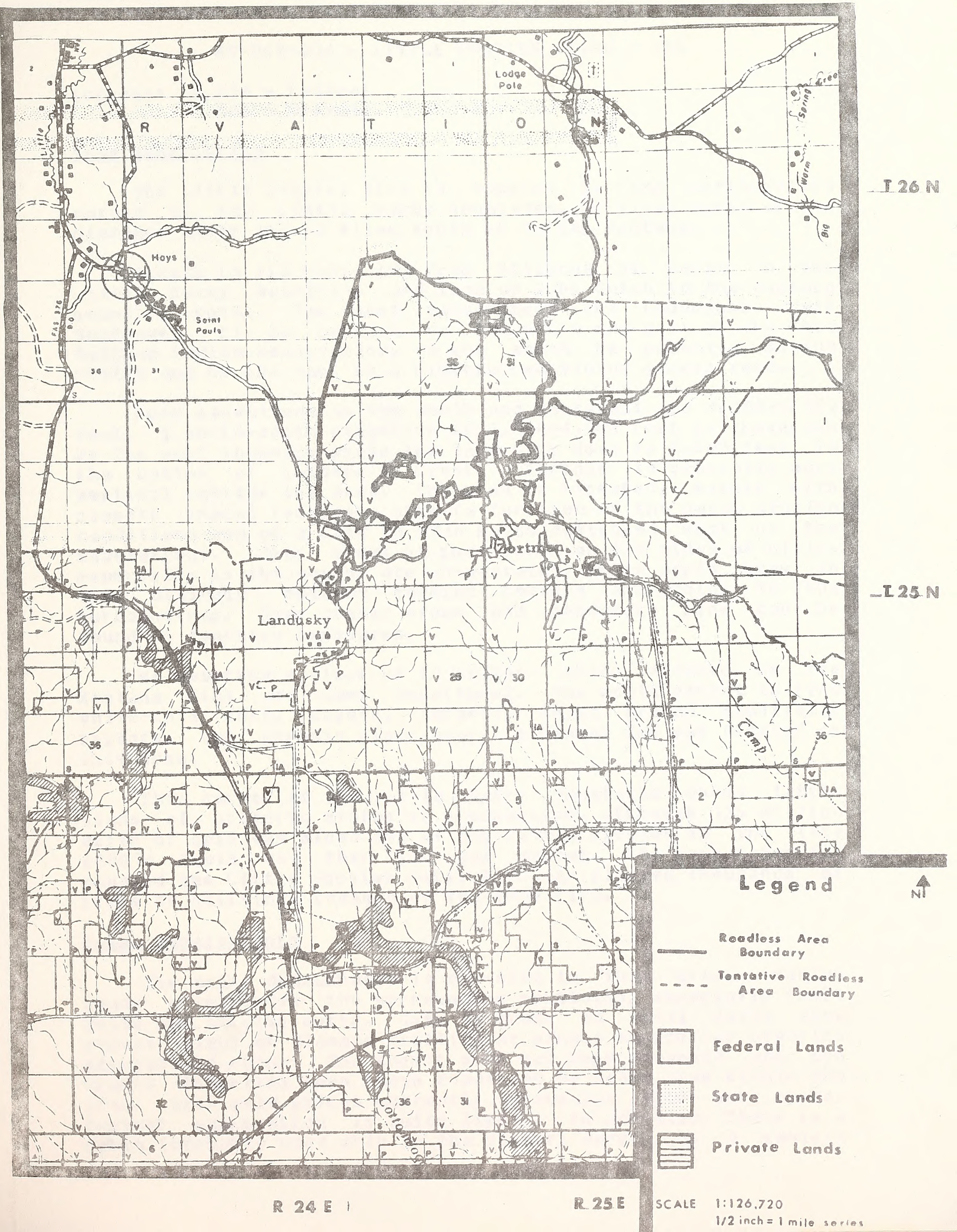
Wilderness Suitability Analysis

The small size of this area and its location close to Highway 191 compromise the few wilderness attributes of this area. Few opportunities for primitive recreation or solitude exist. The natural integrity of the area is impacted by the reservoirs and livestock. The scenic tour route along the west boundary insures continuous off-site intrusions in the form of tourists and their vehicles.

Recommendations

We do not recommend Siparyann Creek for further study.

MT-060-009 LITTLE ROCKIES


Lodge Pole
R V A T I O N
Hoys
Saint Pauls
Little
FAS 376
Warm Spring Creek
Big
T 26 N
Zortman
Landusky
T 25 N
Camp
Rock
Cottonwood
R 24 E
R 25 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-009 - LITTLE ROCKIES (TRA 15)

Acreage: 6,934 - Federal
504 - Private

Area Description

The Little Rockies Area is located in the northwestern corner of the Little Rocky Mountains, 15 miles north of the Missouri River and 60 miles south of Malta, Montana.

Access is via Route 191 from Billings or Malta to the Little Rocky Mountains and then up Ruby Gulch to the eastern boundary road. The area encompasses the Lodgepole Creek drainage. It is bounded on the north and west by the Fort Belknap Indian Reservation, on the south by patented mining claims and on the east by a constructed mining access road.

Peak elevations on the south and southeast are 4,800-5,400 feet. A north-south ridgeline of 4,800-4,900 feet is traversed by the west boundary while the land dips down to 4,000 feet in the bottom of Lodgepole Creek. Terrain is generally more vertical outside the area. The area is forested, mainly with closely spaced lodgepole pine (a function of the harsh growing conditions and of a fire in 1936 which destroyed most of the vegetation). Open areas of rock scree on the sides of hills, especially to the south, are unvegetated, while aspen grow in the drainage bottoms lending texture and color to the surroundings. Some grassy areas and ponderosa pine can be found on southern exposures.

We observed a flock of 18 bighorn sheep planted by the Montana Fish and Game Department. One would expect to find white-tail deer, coyote, marmots, least ground squirrels, raptors, and perhaps black bear. A beaver dam was located in this area.

This corner of the Little Rocky Mountains shows little signs of historic mining or prospecting, although $25 million worth of gold was mined out of the Little Rockies in the late 1800's (gold was then $35 per ounce). The Forest Service managed the Little Rockies until 1952 and planted thousands of trees on hillsides ravaged by the 1936 fire.

Human Developments

The major disturbance is off-site in this area. Mining roads criss-cross the surrounding mountains, especially Shell Butte and Antoine Butte. Some of those on Shell Butte show recent signs of diamond drilling as miners search for ore-rich mineralized veins. The August mine has been reopened and ore trucks traveling down these roads can be heard from within the area. With gold prices currently surpassing $200 per ounce, further exploration is quite likely. In addition, there is a cabin (probably used only in the summer) served by a vehicle

trail jutting in .5 miles from the eastern boundary road. Most of the other vehicle trails head to post and pole thinning sales along the eastern edge of the area. In most of the Little Rockies, however, the land is undisturbed from its native condition.

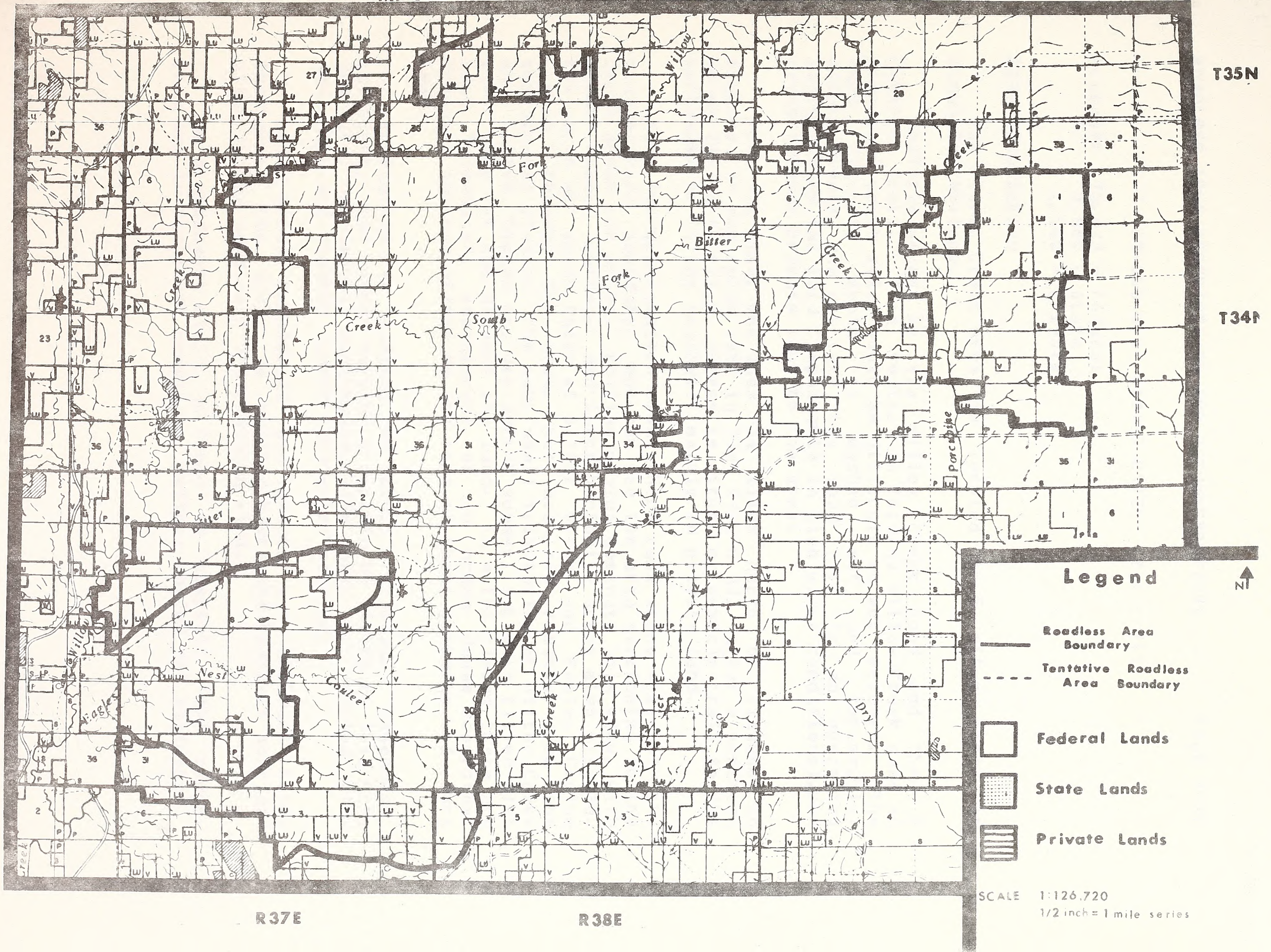
Wilderness Suitability Analysis

The Little Rockies area itself is quite untouched by the works of man. The area is lower in elevation than most of the surrounding lands and appears to lack the valuable mineralization found elsewhere in these mountains. A long ridge screens the western side but the intricate array of roads on the mountainside to the south and east can be easily seen. The northern slopes of the hills within the area consist of extremely dense lodgepole pine, forcing visitors onto south slopes and drainage bottoms for passage. Because of the broken topography of the area, this is not a major infringement of solitude values. Certainly the dense vegetation limits the opportunities for a wide variety of primitive recreational modes, but not to a major degree.

Recommendations

We recommend the Little Rockies area for further wilderness study. Although off-site impacts are highly apparent in the area, the natural integrity is high, as are opportunities for solitude and primitive recreation.

MT-060-010 BITTER CREEK


T35N
T34N
R37E
R38E
Willow
Bitter
South Fork
Creek
Porcupine
Dry
Nest
Coulee
Eagles
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
N
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-010- BITTER CREEK (TRA 71)

Acreage: 75,423 - Federal
2,000 - State
1,500 - Private

Area Description

The Bitter Creek area is located 15.5 miles north of Hinsdale, Montana.

Westerly access is via Willow Creek Road and then a vehicle trail. This route, in fording Willow Creek near an abandoned ranch site, would be difficult in wet weather. The ford directly south is washed out and impassable. Alternatively, one can take the road fork to an operating ranch, cross the ford (impassable in high water conditions), and cross through private land to the area.

From the east, one goes 34 miles north of Glasgow on Highway 24 and turns left in T34N R40E S 33. After a northern swing for three miles, access is either by vehicle trail to the northwest or to the southwest mainly in private land.

From the southeastern ridge which runs along most of the southeastern boundary, one can see the area stretching to the north about ten miles. Rolling plains dominate this view, with gumbo domes, buttes, and large bentonite areas also visible. The north and south forks of Bitter Creek and Eagles Coulee ramble through the area, but are not visible from the surrounding plains. The many small tributaries of Bitter Creek and Eagles Coulee are dry during summer, but when filled with water they cut and dissect the land. In a few places there are sand "blowouts", reminiscent of an ocean dunes ecosystem. Creeping juniper clings to the tops of these hummocks of dark sand.

Vegetation is limited to short grasses, sagebrush, saltbrush, and other varieties capable of living in this hot, dry land. Occasional cottonwood, wild rose, and willow line the banks and cluster around rare water sources.

Small birds, amphibians, and insects are abundant here. Throughout the area, we watched hawks and kestrels soar and glide in the seemingly never-ending wind.

On a windswept bluff, we found 18 complete tipi rings. They are in excellent condition, neither buried nor disturbed.

Human Developments

The area contains 59 reservoirs and one inoperable windmill connected to a water trough, according to aerial photos, maps, and field checks. Most of the reservoirs are small (0.5 to 1 acre), and due to the topography of the land, are not visible from the rolling terrain. As this is an area in which prairie potholes occur, the older and well-vegetated reservoirs are in keeping with the landscape and with what one would expect to see.

There are approximately ten fencelines throughout the area, usually metal or wood post with 4-strand barbed wire.

We met a group of dirt bike users and saw very limited evidence of their passage. Motorcycle ruts actually create more of a feeling of unnaturalness for a visitor than a significant impact on the ecological integrity of the area.

There are nine vehicle trail segments within the area. About half of them show minimal signs of construction, are heavily overgrown, and show very minimal signs of use. In most cases vehicle traffic has not kept tracks clear of vegetation. (This may have been due, in part, to spring vegetative growth covering signs of use prior to this spring.) The remaining vehicle trail segments, which show no signs of construction or maintenance, are heavily overgrown and in many places difficult, if not impossible, to follow.

Although the entire area is leased, due to lack of water and topographic features we observed that only about 50 percent of it is suitable for grazing use. We saw scattered signs of minimal impact from grazing.

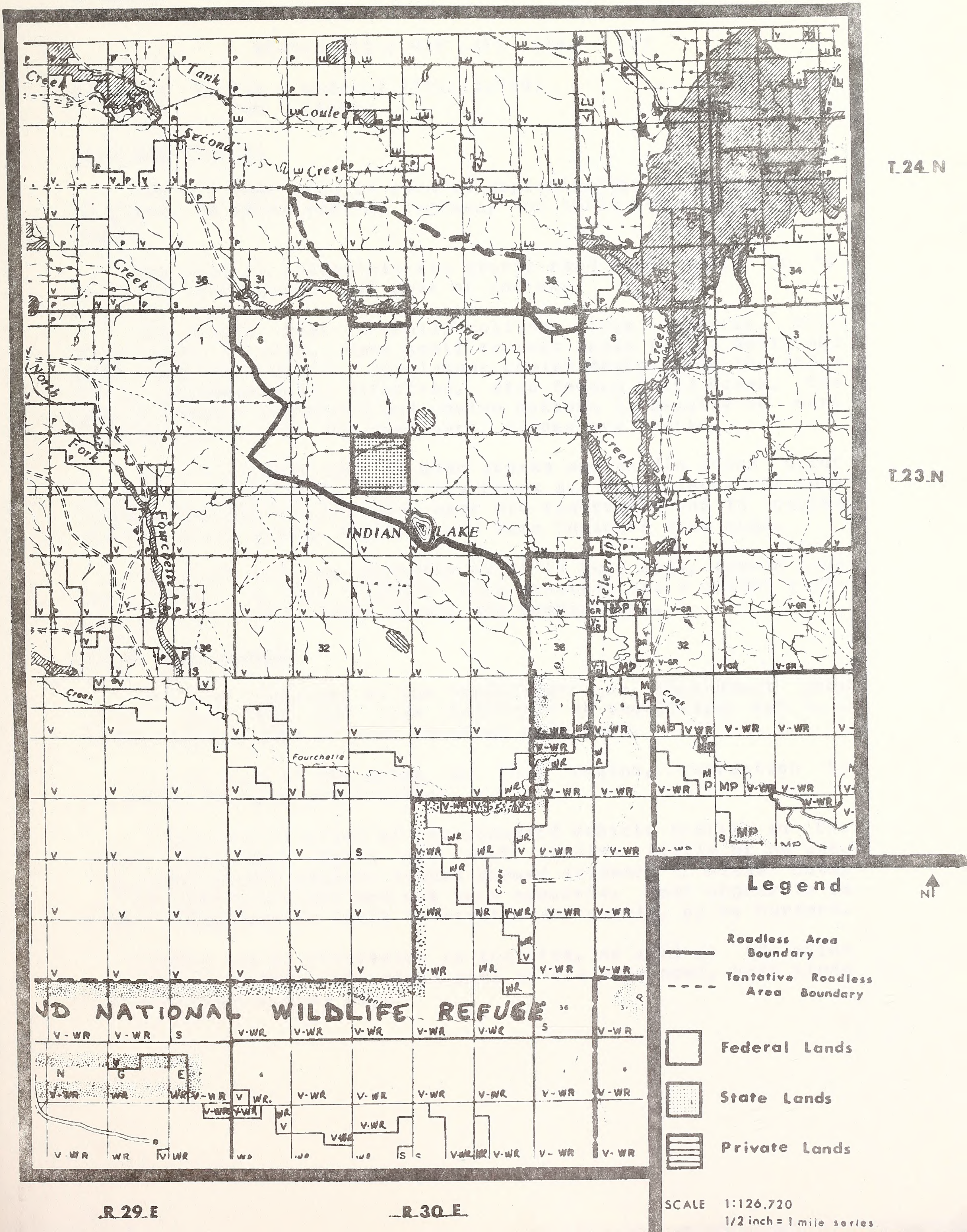
Wilderness Suitability Analysis

Although at first glance Bitter Creek is simply more shortgrass prairie, the straight line scarp on the southeast and east, the convoluted textures of the three forks of Bitter Creek and Eagles Coulee, and the generally lower elevations within the area give it a sense of isolation from the works of man (and even from the area's surroundings) seldom found in most prairie environments in this region. Although signs of mankind exist in the Bitter Creek area, their impacts are comparatively innocuous (fences, vehicular trails, reservoirs) and are diluted in effect by the sheer physical size of the area. The area's size and topography, which gives one a sense of isolation and enclosure, offer a high degree of solitude. Primitive recreation is enhanced by the supplemental wilderness attributes which make this shortgrass prairie unique. These include cultural features, scenic values, and the ruggedness and isolation of the area.

Recommendations

Because of its outstanding wilderness qualities, we recommend the Bitter Creek area for wilderness study.

MT-060-011 DRY LAKE


Creek
Tank
Coulee
Second
Creek
Creek
Third
North
Fork
Fourchette
INDIAN LAKE
Creek
Telegraph
Creek
Fourchette
Creek
ND NATIONAL WILDLIFE REFUGE
N G E
T.24 N
T.23 N
R.29 E
R.30 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-011 - DRY LAKE (TRA 16)

Acreage: 16,332 - Federal (TRA-13,900)
640 - State

Area Description

The Dry Lake area is located approximately 45 miles south of Malta, 38 miles east of Zortman, and 15-20 miles north of UL Bend.

Dry Lake is accessible via county road from Malta or by BLM road from Highway 191 east of Zortman.

One broad, flat-to-gently-rolling ridge traverses this area east to west. Many small coulees drain to the north and east into Third Creek. One larger coulee drains from the ridge in a southeasterly direction, also toward Third Creek. The relief between ridgetops and coulee bottoms is usually no more than 180 feet. For the most part, slopes are gentle.

Common grasses such as blue gramma and needle grass occur in most of the area. Very few trees are found here, but some cottonwoods and willows grow near old reservoirs and in coulee bottoms where roses, willows, and some junipers also grow.

Antelope and deer probably exist in this area, though none were seen. A few raptors were observed and a golden eagle feather was found. Sage grouse are common here.

Human Developments

Grazing continues as the predominant use throughout this area. This has had some influence on vegetation, but to a lesser degree than on many areas we have seen.

As in most of the areas in this region, recreation is primarily hunting and fishing.

There are 17 miles of low standard vehicle trails in the area. Few were built and most receive little or no use. One-third of the vehicle tracks showed evidence of blade cuts, but in general, these are not very apparent. Most appear to be used by ranchers to check reservoirs and cattle, or by hunters.

There are 12 reservoirs in the area, as well as 18 miles of fence, either BLM steel post or old wood post, both kinds with 4-strand barbed wire.

Wilderness Suitability Analysis

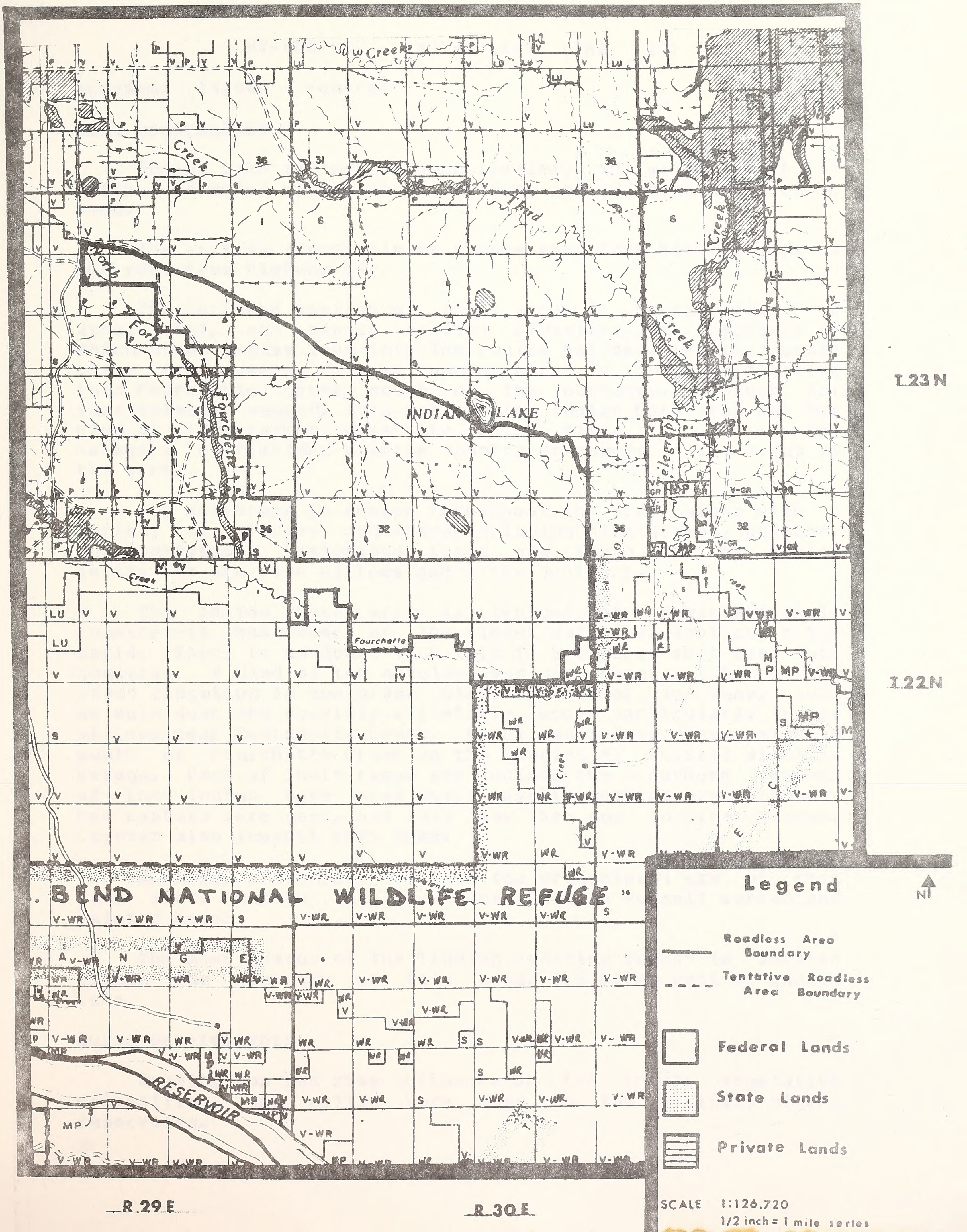
The impacts in Dry Lake are minimal and have little effect on the natural ecological integrity of the area; however, they are highly apparent to visitors to the area.

Solitude and primitive recreation opportunities are both low. The area is large, but a lack of topographic and vegetative screening limit the opportunity to find solitude. Little diversity of primitive recreation opportunities exists in the area, although there is some element of challenge. Some cultural features and artifacts are present here.

Recommendations

We do not recommend the Dry Lake area for wilderness study. Although wilderness characteristics are present in the area, they are not significant.

MT-060-012 INDIAN LAKE


INDIAN LAKE
BEND NATIONAL WILDLIFE REFUGE
RESERVOIR
North Fork
Fourchette
Creek
Third Creek
Telegraph Creek
T.23N
T.22N
R 29 E
R 30 E
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-060-012 - INDIAN LAKE (TRA 17)

Acreage: 14,080 - Federal

Area Description

Indian Lake is located approximately 50 miles south of Malta, 43 miles southeast of Zortman, and 12 miles north of UL Bend.

The area is accessible by county road from Malta and by a BLM road from Highway 191.

The northern portion of this area is characterized by wide, flat, and gently rolling ridgetops, the shoulders of which slope gently down into the coulee bottoms. Farther south there are several coulees running north to south and draining into Fourchette Creek south of the boundary. Though not particularly rugged, this part of the Indian Lake area has the kind of topographic diversity which takes it out of the category of flatland prairie country so common in the areas to the north.

Big sagebrush is common throughout the area, along with a variety of grasses and weeds, including blue gramma, gumweed, and snakeweed. Cottonwood trees are found in the coulee bottoms as are rose willows and a few junipers.

The Indian Lake area is typical of prairie-pothole country--it has some of the finest waterfowl habitat in the world. There is no doubt that this is a favored spot for duck hunters. A band of ten antelope was seen several times on the broad ridgetops in the area. Other species of big game, such as mule deer and possibly whitetails, occur particularly in the willows near Fourchette Creek. Black bears have been sighted south of Fourchette Creek on the Charles M. Russell Wildlife Refuge. Part of their range may include the southern coulees of the Indian Lake area where rosehip berries are abundant. Few raptors were seen, but this may be due to the season. Coyotes also inhabit this area.

Grazing, of course, has been the predominant use of this land since before the days when Charlie Russell worked and painted here.

The most famous of the "Indian Medicine Rocks" is located within the boundary of this area, 0.5 miles west of Indian Lake.

Human Developments

Grazing has had some influence on the area's vegetative composition, and cattle were seen in the vicinity of the reservoirs.

A drill hole, now capped, was the only sign of mineral development in the area. One vehicle track was built to access this exploratory well. There has been no activity here since the well hole was drilled some 10-15 years ago.

Recreation in this area is limited to the hunting of big game, sage grouse, and waterfowl. Fishing occurs in some of the reservoirs.

Eleven segments of low standard vehicle trails, totalling 12 miles, are in this area. Some of the trails were built to help control range fires. The remaining trails were built in conjunction with the reservoirs.

A telephone line follows a vehicle trail across the western peninsula of the area for one mile.

There are 17 reservoirs in the area. Several of these are dry and all are small and inconspicuous. Many resemble the prairie potholes also found in the area.

Approximately 12 miles of fence cross through the area, mostly 4-strand wire with old wood posts. The remainder is metal post BLM fence.

Wilderness Suitability Analysis

Human developments are dispersed throughout this area, but the major visual impacts (telephone line, capped oil well) are very localized. Both the natural integrity and the apparent naturalness of this area are moderate.

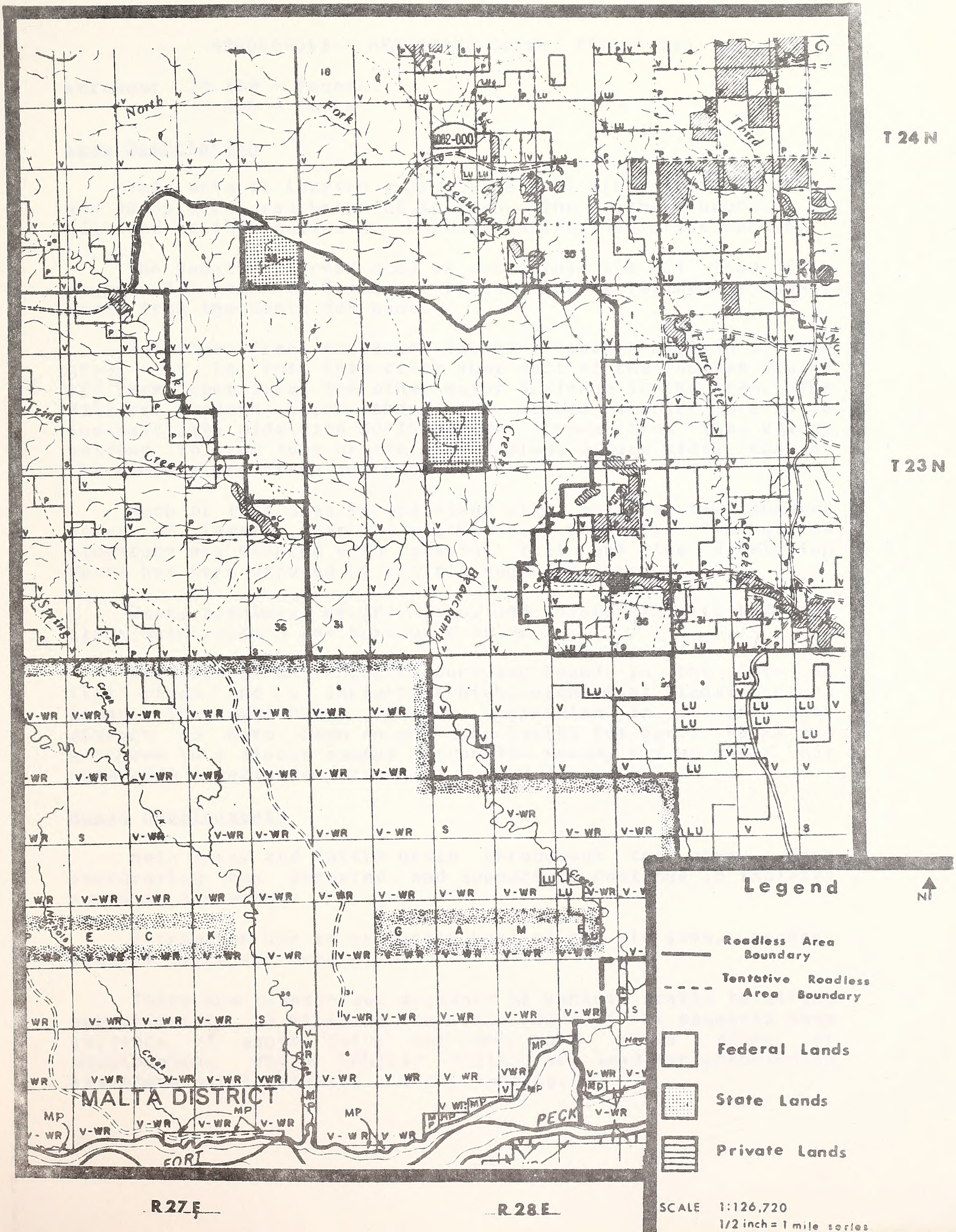
Opportunities for solitude and primitive recreation are both relatively low, but scenic quality is significant. The Indian Medicine Rocks in the area are of special historic interest.

Recommendations

We do not recommend Indian Lake for wilderness study. Although wilderness values are present in the area, they are not significant.

We do, however, suggest special administrative protection of the historic Indian Medicine Rocks.

MT-060-013 BEAUCHAMP CREEK


T 24 N
T 23 N
North Fork
Third
082-000
Beauchamp
Fourchette
Creek
Trine Creek
Spring
Beauchamp
Creek
G A M E
MALTA DISTRICT
PECK
FORT
R 27 E
R 28 E
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-060-013 - BEAUCHAMP CREEK (TPA 18)

Acreage: 24,408 - Federal
640 - State

Area Description

This area is located approximately 60 miles south of Malta and 30-35 miles southeast of Zortman. The southern boundary is adjacent to the Charles M. Russell National Wildlife Refuge.

The Beauchamp Creek area is accessible via BLM road from Highway 191 south of Zortman. It can also be reached by county roads from the north and east.

Beauchamp Creek traverses the southeastern portion of the area. It is into this creek that most of the coulees drain. Dry Fork Creek forms the other major drainage in the area. The valleys through which these two creeks meander are up to one-half mile wide with 30-45 degree slopes from the valley bottoms to the tops of the ridges along either side. Most of the coulees are steep and rugged.

Much of this area is grassland with only a few hundred acres of forest near the southeastern boundary. Some of the ridgetops are covered with glacial till and the vegetation there has been denuded by prairie dogs and sheep.

Deer, antelope, prairie dogs, and coyotes inhabit the area along with raptors and burrowing owls.

Evidence of an Indian culture was found in the form of tipi rings and a three-foot high, eight-foot diameter stone mound. The mound has a shallow depression in it and what appears to have been an entrance facing the east. Rocks are arranged in a linear manner around the mound, but we could not determine a definite pattern.

Human Developments

Both sheep and cattle graze throughout the area. Some overgrazing has occurred and appears to continue in isolated parts of the area.

Recreation use is primarily hunting for big game, grouse, prairie dogs, and coyotes.

There are twenty-four segments of vehicle trails totalling approximately 25 miles in the area. Nine of the segments show evidence of blade cuts, but only one shows signs of maintenance. These vehicle trails are used for checking on livestock and reservoirs and for hunting.

There is one 2-wire, low voltage powerline passing across the southern part of the area for about three miles.

Approximately 22 miles of fences exist in this area. The fences range from a 4-strand to a wire mesh sheep-tight fence (completely impassable to antelope). In the area presently being grazed there are definite signs of fenceline contrast.

Fourteen small reservoirs also exist in this area.

Wilderness Suitability Analysis

The major impacts in Beauchamp Creek are the powerlines, sheep grazing, and about 20 miles of fence. The impacts moderately affect the natural integrity of Beaver Creek and have a high impact on the overall apparent naturalness of the area.

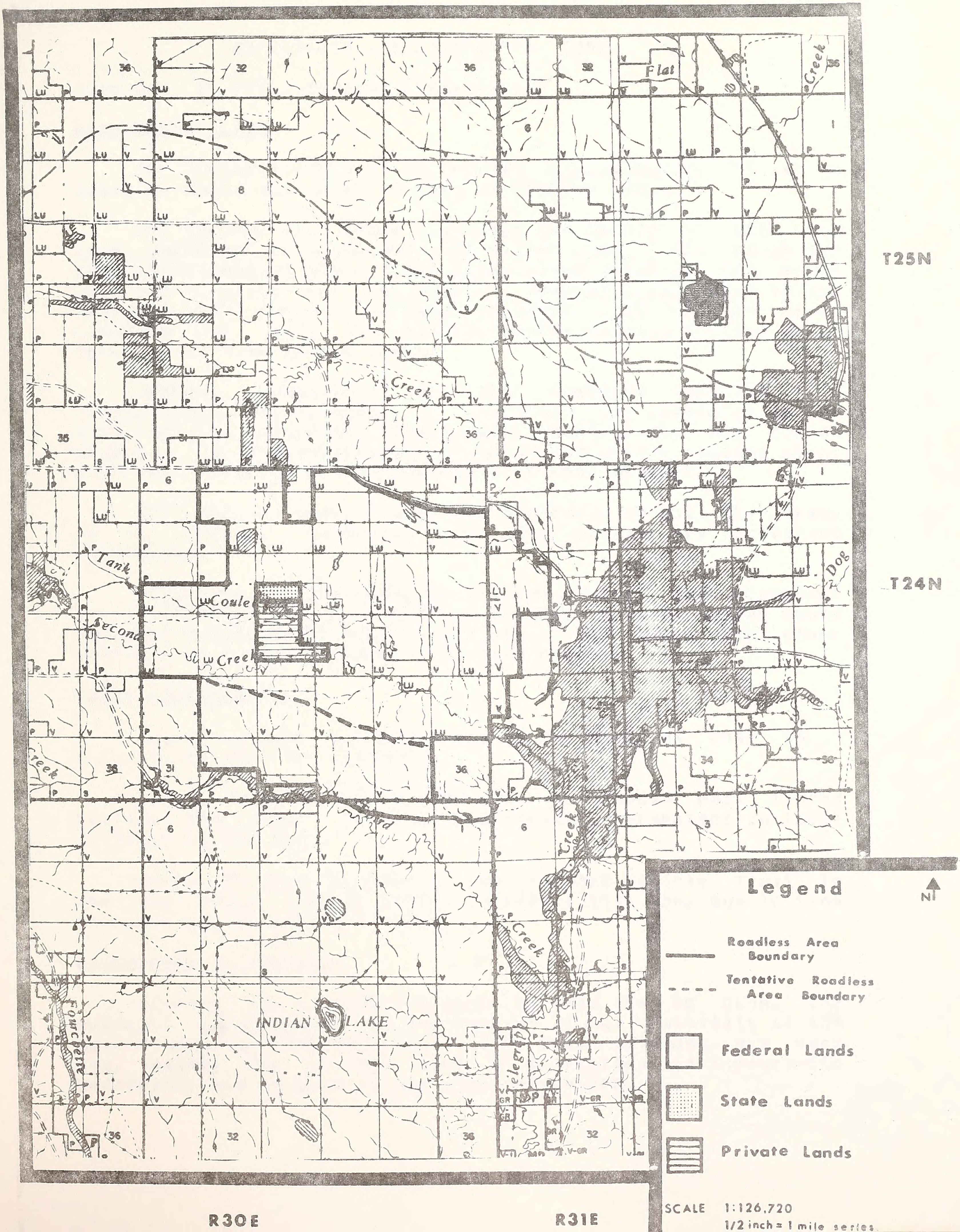
Opportunities for solitude and primitive recreation are low, primarily due to the limited amount of vegetative screening, off-site intrusions, and lack of diversity. Of special importance to the area are cultural features consisting of tipi rings and a possible medicine wheel.

Recommendations

Due to the presence of a utility row, many miles of steel post fences, and vehicle trails, and several off-site intrusions, we do not recommend further wilderness study of this area.

We also recommend that particular consideration be given to the cultural site we have described to assure that no further intrusions diminish the integrity of this site.

MT-060-14 SECOND CREEK


T25N
T24N
R30E
R31E
Flat Creek
Creek
Tank Coulee
Second Creek
Dog
Creek
Creek
INDIAN LAKE
Telegraph
Fourchette
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-014 - SECOND CREEK (TRA 19)

Acreage: 16,203 - Federal (TRA-12,549)

Area Description

The Second Creek area is located approximately 43 miles south of Malta and 35 miles east of Highway 191.

One narrow, flat ridge traverses the middle of the area from northwest to southeast. On either side of this ridge are many small coulees which drain into Second Creek to the north and Third Creek to the south. Several broad, flat ridges dominate the terrain in the northern part of the area. Draining off these are several gently sloping coulees which drain south into Second Creek.

Crested wheatgrass is the dominant species in approximately 60 percent of the area. The remainder of the area contains sagebrush, blue gramma, needlegrass, and common grasses. A few cottonwoods occur in the wetter coulees along with some junipers and an abundance of rose willows.

Antelope and deer, though not observed, inhabit the area, as do coyotes. Waterfowl and sage grouse are prevalent throughout.

According to Gene Bernard, a local rancher and president of the Phillips County Historical Society, a major Indian route followed Second Creek through the area. Tipi rings and other remnants of Indian cultures may still remain.

Human Developments

Eighteen small reservoirs are in the area, as well as a water ditch near the boundary.

Twenty miles of 3-4-strand wire on wooden post fences crosses the area. Crested wheatgrass is prevalent in large portions of the area.

There are also 20 miles of low standard vehicle trail in the the area. These trails receive little use, mostly from ranchers and occasional hunters.

Wilderness Suitability

Although the natural integrity of this area is high, the apparent naturalness is low because of the visibility of the area's impacts. The opportunities to find solitude are very low, mainly due to the lack of vegetative and topographic screening, and because of off-site intrusions.

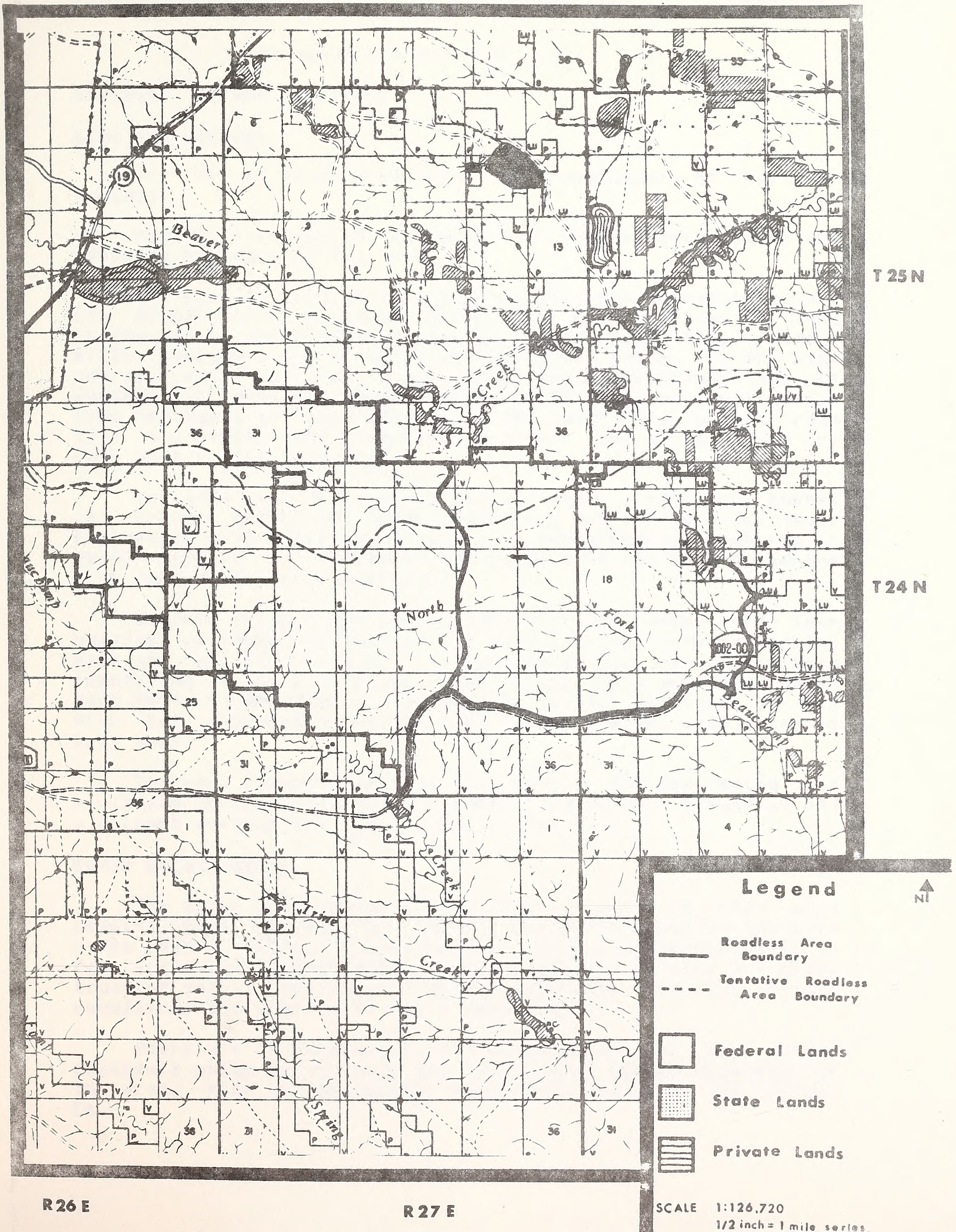
Primitive recreation was rated low because of the lack of diverse opportunities in the area, and because of the moderate number of challenging features.

Recommendations

We do not recommend this area for further study because of its many vehicle trails and fences, as well as limited opportunities for primitive recreation or solitude.

During the inventory, the southern boundary (thought to be a road) was extended because the vehicle trail forming it does not meet the BLM "road" definition. This included 3,654 additional acres into the roadless area.

MT-060-015 DRY FORK


Beaver
Creek
North
Fork
Beauchamp
Creek
Creek
Spring
19
0602-003
T 25 N
T 24 N
R26 E
R27 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-015 - DRY FORK (TRA 20)

Acreage: 24,418 - Federal

Area Description

Dry Fork is located 12 miles east-southeast of Zortman, Montana.

Access is via US 191 and then east on Dry Fork Road to the southern boundary of the area.

Dry Fork is divided into two separate physiographic types: the broad, flat drainage of Dry Fork Creek divides the area horizontally, and lightly dissected bluffs and low, rolling hills overlook the creek on the north and south. On the west and southwest, the area drops into Beauchamp Creek and is bounded by private land; on the north the area abuts deeded land belonging to Manson Frye; on the east the access road into a private ranch forms the boundary; and on the south Dry Fork Road is the boundary.

The area is a short-grass prairie type. Riparian rushes and grasses offset the creek boundaries and surround the small reservoirs with a fringe of green. A few ponderosa pine can be seen, nestled in nutrient-rich pockets in the side drainages that empty into creek bottoms.

Several prairie dog towns found in the area have been heavily decimated by hunters (in fact we found hunters working over one of the towns). A burrowing owl was positively identified in one prairie dog town. Swainson's and marsh hawks were noted in abundance. We expected to see antelope in the area but saw none--possibly they cannot compete with sheep in this area.

The area abounded in tipi ring sites. The last noted was a stream bottom site which is somewhat unusual. A hand ax and a chipped scraper were also found in the area.

Human Developments

The major disturbance in the western half of this area results from grazing by sheep. All range sites we saw were badly beaten, with more heavily-used sites containing only a few scattered unpalatable grasses, glacial cobbles and open, trampled soil. The eastern half of this area is in far better condition, and grazing is not a disturbance.

There are 22 reservoirs, all small except for one larger reservoir which is the only one that can be viewed from much of the area. Many of the smaller reservoirs appear to be silted in.

There are many sheep-type grid fences with barbed wire in this area. This is one of the few instances we saw of a major visual and aesthetic disturbance caused by fences. The obvious fenceline vegetative contrast and the lack of shielding vegetation make the wooden post sheep fences stand out as a visual intrusion. Other fences are 3-4-strand barbed wire on steel or wooden posts and create a minor impact.

There is one dry gas hole marker in the area and it is revegetating well, although with different species than the surrounding prairie.

After grazing, the most significant disturbance concerns vehicle trails. The area is divided into two parts by a vehicle trail which enters via a cattleguard and runs north to private land. (This road showed obvious maintenance where gravel had been recently emptied into drainage bottoms to create a lasting crossing, especially in wet weather.) Other vehicle trail segments are low-standard and are probably used only in the fall by hunters.

Wilderness Suitability Analysis

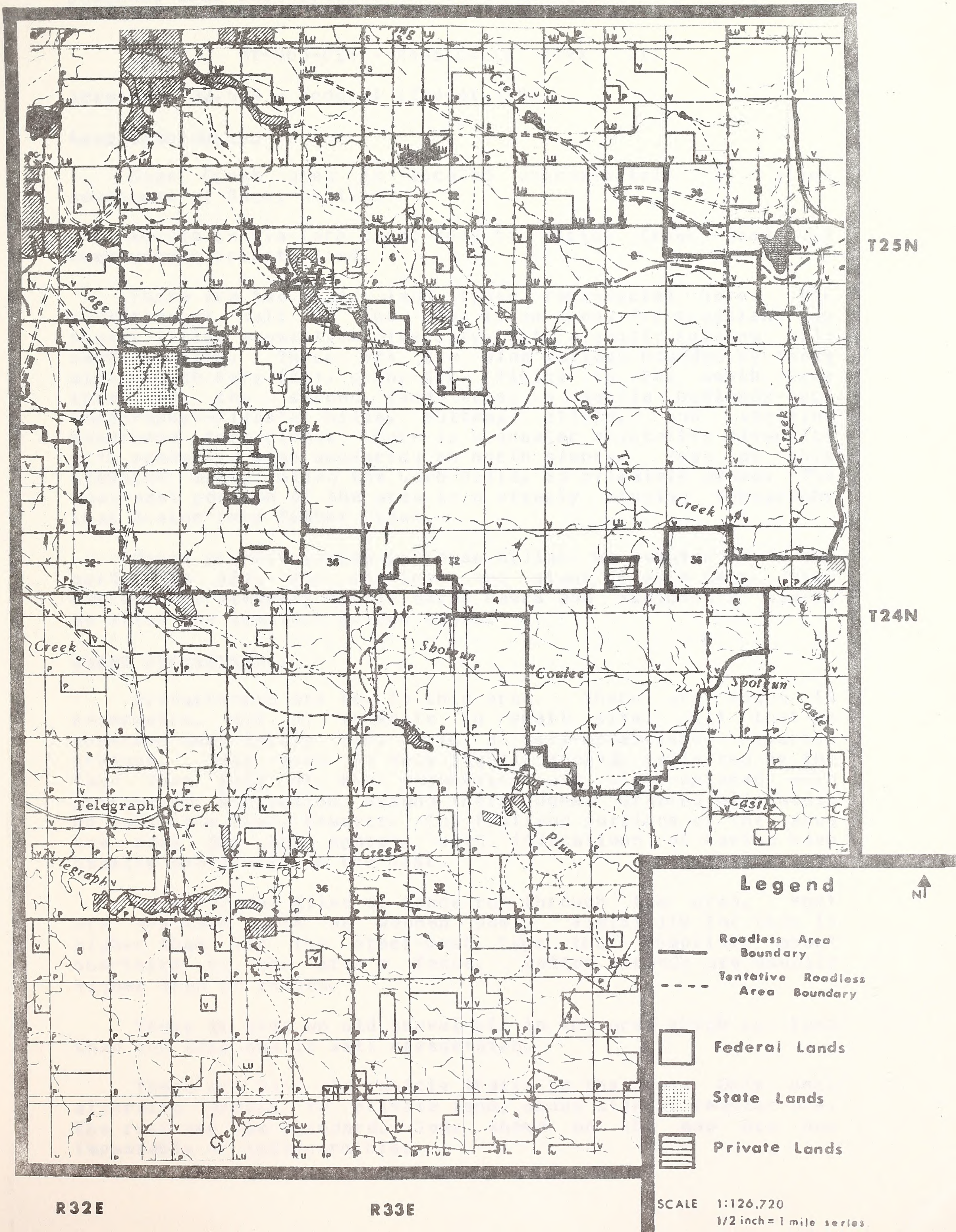
Dry Fork rates lower on natural integrity than similar physiographic sites, mostly as a result of heavy grazing pressure. Grazing effects make the presence of fences especially noticeable here. The area does provide an undeniable opportunity for solitude, but the wide open vistas which offer this solitude also threaten it in the sense that other humans or human activities are very conspicuous. The passage of vehicles on the road through the center of the area is obvious from many vantage points. The road in effect creates two areas which cannot stand on their own merits as far as wilderness values are concerned.

Recommendations

We do not recommend wilderness study for the Dry Fork area, but we do suggest an archaeological inventory to record the many sites in the area before they are destroyed by grazing or by vandalism.

The vehicle trail splitting the area in half (T24N, R27E, Section 26) meets the BLM definition of a road and necessitates a boundary revision (see map).

MT-060-016 SAGE CREEK


T25N
T24N
R32E
R33E
Sage Creek
Lone Tree Creek
Creek
Shotgun Coulee
Shotgun Coulee
Telegraph Creek
Telegraph
Creek
Castle
Plum
Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-016 - SAGE CREEK (TRA 21)

Acreage: 32,614 - Federal (TRA-41,579)

Area Description

Sage Creek area is located approximately 30 miles southwest of Saco, Montana.

Access is via Larb Creek Road to Spring Creek Road and then across private land.

There are two basic land types represented here. The northernmost half of the area is an open, dry grassland--no trees, little vegetative diversity, with a gently rolling hill configuration. There are two wide valleys bounded by these hills--both very flat, open, dry. Rising to the south from this is the second land type, a subtle badlands-type topography--sizable hills, buttes, cliffs, and striking sandstone formations. Here is a greater vegetative diversity with ponderosa pine appearing on north slopes. Most of this elevated area, called the Larb Hills, is privately owned. The southeast portion of the area is a steeply sloping topography that drains into Timber Creek.

There are elk living in these hills: we counted 64 in one herd. We also saw antelope and signs of mule deer. Many raptors are present, mostly marsh hawks and Swainson's hawks. We sited one immature golden eagle.

Human Developments

Disturbances are few in this area. There are about 15 reservoirs, all of moderate to small size. All that we observed were fairly old, with a well-established riparian ecology. This area is only lightly grazed, reflected by the fact that most of the reservoirs are clear-watered with untrampled vegetation around their edges. Grazing allotments do cover the area, however. The flatland portions of the area are very dry and sparse, with indications of having been heavily overgrazed in the past.

Twenty-seven miles of fence run through the area. Most are 4-strand wire on wooden post. Visibility for this is higher than for the steel-post type that comprises about one-third of the area's fence. Bottom strands are usually higher than 18 inches.

There is also an old gravel pit in the area which is less than one acre and is well revegetated.

There are only six vehicle trails in the area. Only one, affording access to private land, shows sign of regular use. The rest are low standard. Some shown on the map are now impassable or indiscernible.

Off-site impacts are present in the form of visibility of surrounding agricultural lands and some roads. This would affect probably only 30 percent of the area; during our time there the off-site developments had only a minimal impact on our sense of solitude.

Wilderness Suitability Analysis

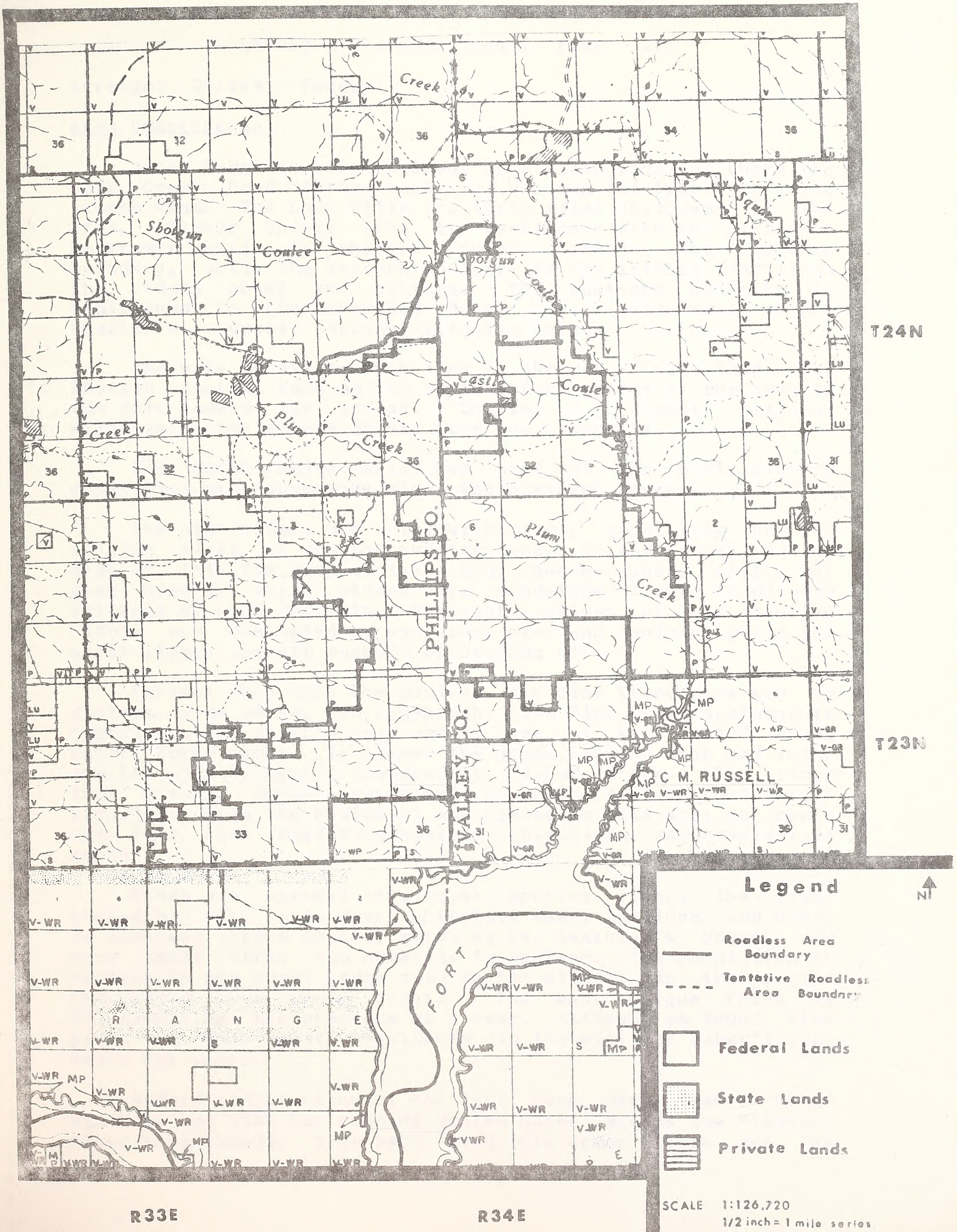
Developments in the area are minimal, and the influence of impacts on natural integrity is very low, with influence on apparent naturalness also being low. The area is large and offers some topographic and vegetative screening. Larb Creek Road, in the northeastern part of the area, carries a reasonable volume of traffic which might be visible from the eastern third of the area. Planted fields are also visible from the area. These off-site impacts have a minimal effect on the moderate opportunities for solitude found in the area. Opportunities for primitive recreation are also moderate, with some diversity, and a moderate number of challenging features. Scenic values are significant.

Recommendations

We recommend that Sage Creek, with adjusted boundaries, be studied for wilderness consideration. The recommended boundary adjustment creates a western boundary in T25N, R32E that runs north-south on the section lines of sections 35-36, 25-26, 23-24, 13-14, and 11-12. This adjustment excludes 1,600 acres of deeded land, three vehicle trails (including the deeded access road) and the area's largest reservoir. Removing these on-site impacts would leave an area of very high natural integrity, high opportunities for solitude,and little conflicting land use.

In addition, special consideration should be given to this area's contiguity to Burnt Lodge Roadless area, also recommended for further wilderness study. The two areas adjoin on a 0.75 mile common boundary in the southeastern corner of Sage Creek. Only a minimal standard, impassable vehicle track comprises the present border.

MT-060-17 BURNT LODGE


Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
T24N
T23N
R33E
R34E
PHILLIPS CO.
VALLEY CO.
C.M. RUSSELL
FORT
R A N G E
Shotgun Coulee
Castle Coulee
Plum Creek
Squaw
Creek
V-WR
V-GR
MP
LU

MT-060-017 - BURNT LODGE (TRA 22)

Acreage: 20,109 - Federal

Area Description

Burnt Lodge is located about nine miles south of where the Larb Creek Road turns east and becomes the Triple Crossing Access Road. The Larb Hills are three miles northwest of the area. Timber Creek, from its confluence with the Fort Peck Reservoir north to Shotgun Coulee, composes the eastern boundary, while the western boundary is the private land along the ridges above the coulees. The southern boundary is contiguous to the proposed Burnt Lodge Wilderness on the Charles M. Russell National Wildlife Refuge.

The main access to this area is through private land. The Shotgun Coulee Road on the northwestern border of the area is the only federal BLM access. Charles M. Russell National Wildlife Refuge allows access from the reservoir.

The Burnt Lodge area has some of the most diverse vegetation and topography along the Missouri Breaks.

The high ridges are thick with grass, especially on the rolling hills of the southwestern end. As the ridges end and drop off into the deep coulees, many become sheer cliffs of grey basalt, while others are sandstone carved in diverse patterns by wind and rain. The south slopes of the gentler ridges are dominated by ponderosa pine and juniper, while the north slopes support pockets of Douglas fir.

Further down into the coulees, the pine trees give way to willows, shad scale, and sagebrush. The Plum Creek drainage is representative of this area and is one of the "wild" areas within Burnt Lodge. In summer the grass is knee deep and lush, and the sage is sparse compared to Timber Creek. The ridge that divides these two creeks is gumbo, delicate and easily impacted. From the bottom of any coulee in this area we could see tall rock cliffs--sandstone formations and castle-like rocks.

There are several big game species within the area, including elk, mule deer, whitetail deer, antelope, and bear. We observed golden eagles, marsh hawks, Swainson's hawks, and many small birds too numerous to mention. The population of coyotes in the Burnt Lodge area is the highest in the region (we heard them every night). The most unique thing we discovered was the presence of a bear. Although we found five piles of bear scat, residents in the vicinity haven't seen bears for years.

Before construction of the Fort Peck dam, Timber Creek drainage was used for running stolen horses across the Missouri River into Canada. Somewhere along this creek there are the

remains of an old cabin used by rustlers.

Grazing has been the dominant use since the area was first settled. Today it is still the predominant use along with hunting in the fall.

In 1971 a large fire burned several thousand acres of timber in the northwest portion of this area. A short fireline was constructed there with a D-4 cat.

Human Developments

There are approximately ten miles of fences, most of which are along the boundary. These are mostly unobtrusive wooden posts with 4-strand barbed wire and a few scattered steel posts. No fenceline contrast was noticed.

There are approximately 19 miles of low standard vehicular trails in this area. The ridge trails are all grassy tracks used mostly by hunters, according to a local resident. One vehicle track completely bisects the area leading to private land on its southeastern border. Although the track provides the only means of access to this private land, it is washed out and blocked by downed trees. It does not appear to have been used for several years.

There are only five reservoirs within the area, three of which are in the same section. These reservoirs are unnoticeable, with unobtrusive earth dams.

There are two metal storage buildings along Timber Creek that can be seen from only a few of the ridges.

Two private houses along the western boundary can be seen from some of the ridges within the area.

Wilderness Suitability Analysis

The overall natural integrity and apparent naturalness of this area are both quite high. This area provides excellent opportunities for solitude and primitive recreation because of its large size, and its contiguity with lands recommended for wilderness designation on the Charles M. Russell National Wildlife Refuge.

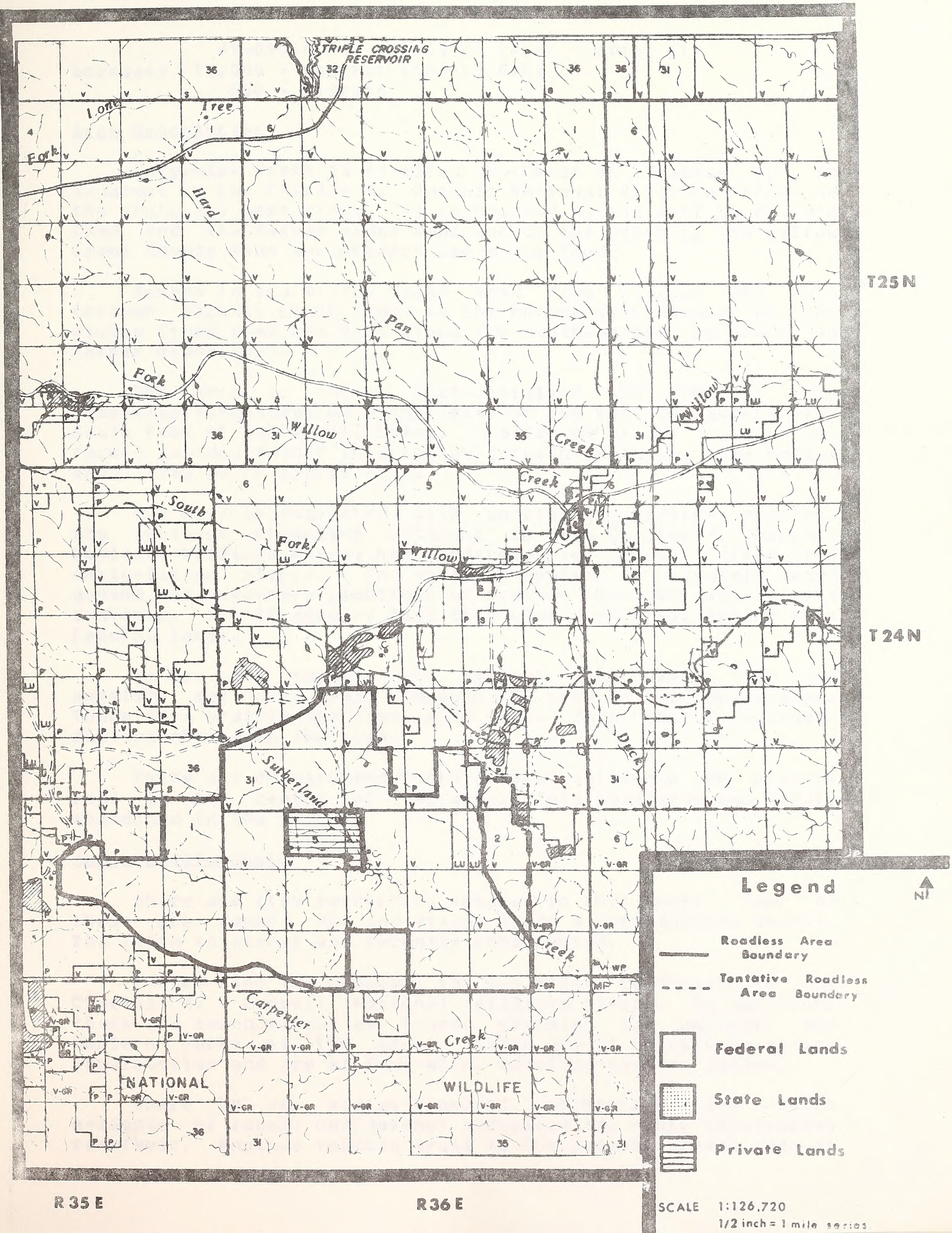
In addition, the area has many supplemental wilderness attributes, including unique geological and cultural features.

Recommendations

Because of its outstanding wilderness characteristics, we recommend Burnt Lodge for further wilderness study.

In addition, we suggest special consideration be given to the area's contiguity with the Sage Creek roadless area during the wilderness study phase. The two areas have a 0.75 mile common boundary, and are separated by a low-standard, impassable vehicle track.

MT-060-018 CARPENTER CREEK


TRIPLE CROSSING RESERVOIR
Lone Tree
Fork
Hard
Pan
Fork
Willow
Creek
Willow
Creek
South
Fork
Willow
Creek
Sutherland
Duck
Creek
Carpenter
Creek
NATIONAL
WILDLIFE
T25N
T24N
R35E
R36E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-018 - CARPENTER CREEK (TRA 23)

Acreage: 13,090 - Federal (TRA-13,875)
530 - Private

Area Description

Carpenter Creek is 45 miles southwest of Glasgow and is adjacent to the Charles M. Russell National Wildlife Refuge on the south and east sides. It is bounded on the west by private land and the Harper Ridge Road and on the north by the Willow Creek County Road and private and state land.

Access is via Willow Creek Road from Glasgow and then through Etchart ranch lands to the northeast boundary, or from Willow Creek Road and then along the southwestern boundary on Harper Ridge Road.

The area is rather self-contained and includes the dissected ridgelines on either side of the west-to-east-flowing South Fork of Sutherland Creek. Erosion on these ridges has formed rounded rather than rugged terrain features. The bottom areas tend to be fairly flat.

The area is vegetated with shortgrass prairie species. The southern ridgeline adjacent to the Charles M. Russell National Wildlife Refuge has ponderosa pine clusters along its north-facing slopes. An enclosed section of privately owned ground has extensive plantings of crested wheat throughout its confines, but it appears that this exotic does not extend into federal lands.

We saw two coyotes and several mule deer. Elk and antelope may also pass through the area in fall and winter. There is a prairie dog town with more than thirty burrows. Raptors abound in the area.

There are delapidated homesteaders' buildings on private land in the center of the area. This homestead was likely abandoned in the 1930's.

Human Developments

There are five reservoirs located in this area; four of these are washed out and silted in to a considerable degree. The fifth reservoir was recently constructed.

Fences line the boundary for 8.5 miles, contiguous to the Charles M. Russell National Wildlife Refuge. In addition, there are seven miles of fences crossing the northern and eastern parts of the area. These are of relatively modern construction and are of four-wire, antelope-passage design.

There is one medium-standard, maintained road (with evidence of recent bulldozing) accessing the newly constructed reservoir. Another vehicle trail is the primary access into an

enclave of private land. Portions of it have been regularly used. Two other vehicle trails are present in the area, but are low standard and appear to be rarely used.

A 640-acre enclave of private land is located in the area. Homestead buildings and extensive plantings of crested wheatgrass are present there.

An underground telephone line is located just within the boundary of this area, contiguous to the Willow Creek Road right-of-way. It could be separated easily from the roadless area boundary.

Off-site impacts include cultivated fields along the area's western and northern boundaries. In addition, traffic along the Harper Ridge and Willow Creek Roads would be visible from high vantage points in the area.

Wilderness Suitability Analysis

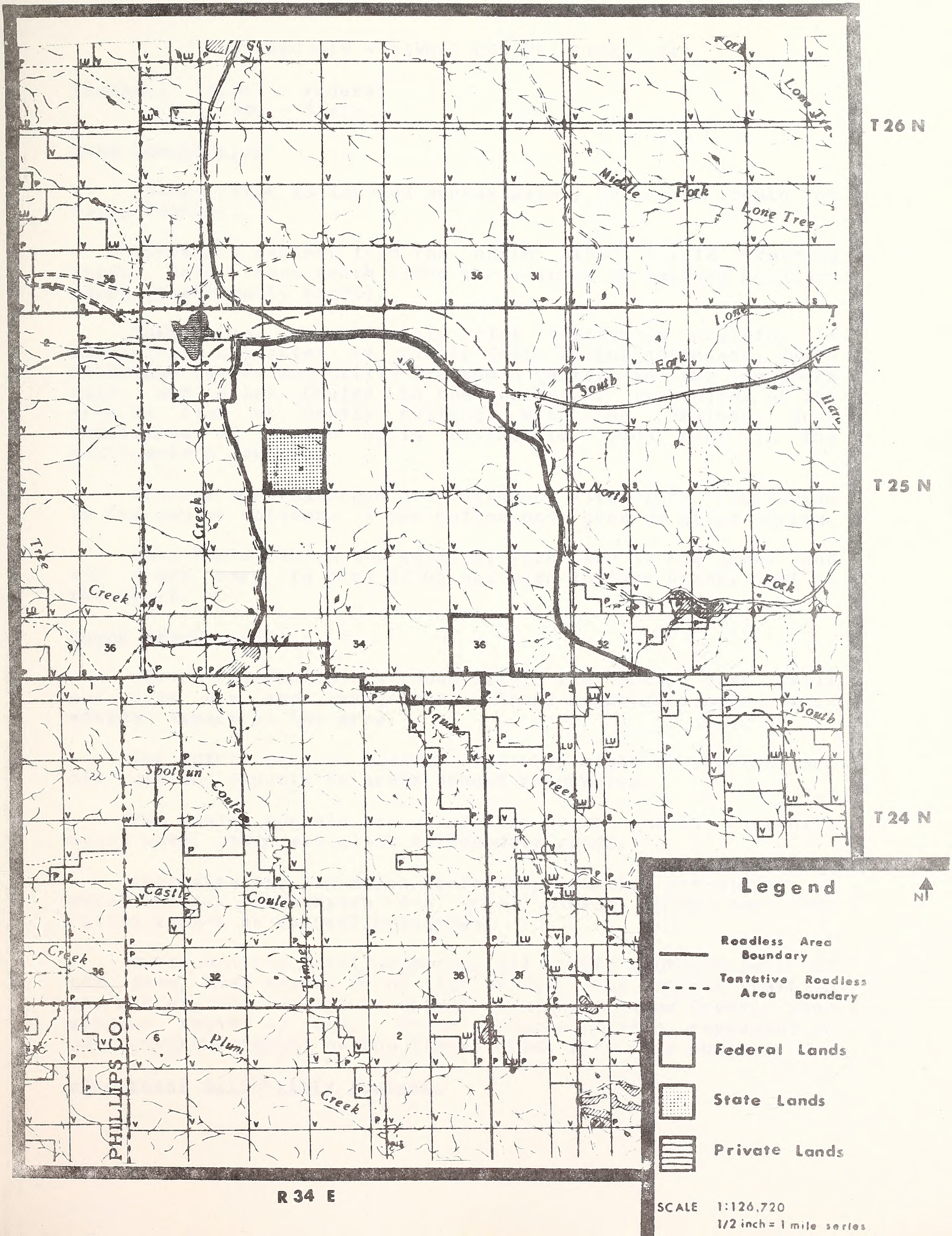
The Carpenter Creek area offers an untouched landscape--only one silted-in reservoir remains inside the adjusted boundary. The few vehicle trails enclosed are marginal. Likewise, the fencelines do not particularly impede the flow of natural processes in the area and are visually not very intrusive. The area appears generally unaffected by man. Opportunities for solitude and primitive recreation are moderate to low.

Recommendations

We do not recommend this area for wilderness study because the potential for solitude or primitive recreation is less than exemplary, the enclosed private land affords the opportunity for unacceptable intrusion, and because the area lacks special scenic, cultural, ecological, or geological features.

The boundary change for the eastern side that appears on the map of this area results from vehicle trails that are regularly maintained and used. We feel they meet the BLM definition of a road.

MT-060-019 TIMBER CREEK


T 26 N
T 25 N
T 24 N
R 34 E
Lone Tree
Middle Fork Lone Tree
Lone
South Fork
North Fork
Creek
Tree Creek
Squaw Creek
Spotgun Coulee
Castle Coulee
Timber
Creek
Plum Creek
PHILLIPS CO.
South
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-019 - TIMBER COULEE (TRA 24)

Acreage: 15,513 - Federal
640 - State

Area Description

Timber Creek is located approximately 30 miles south of Saco, Montana.

Access is easiest from the north along Triple Crossing Access Road, then south along the western or eastern boundary roads (both county roads).

This area, of primarily flat shortgrass prairie, is moderately dissected by Timber Creek in the northwest, North Frenchman Coulee and Little Frenchman Coulee in the southern half, and Niles Coulee in the southeast. Two-thirds of the area is flat or gently rolling, with the remaining area consisting of broken hills rising to 3,000 feet in the southeastern corner.

Grasses and sagebrush are dominant, with lush vegetation in the coulee bottoms. A few cottonwoods grow by Niles Spring.

Many hawks (marsh and kestrel) were seen in the area, and elk graze here (a herd of 65 was seen in Sage Creek, just to the west).

Human Developments

Eleven reservoirs are found within the area, most small and some dry and revegetated. These reservoirs have a very minimal impact on the area.

The entire area is leased. The only signs of grazing are cow ruts and impacts in areas around reservoirs.

Two wooden corrals are within the area; one is currently being used. Both are close to boundary roads.

Approximately ten miles of fences, usually 3-4-strand on metal posts, crisscross the area. These fences have very little impact on natural processes.

Seven vehicle trail segments, all in the southern part of the area, show little or no sign of use. The vehicle trail to the corral, and the one to private land near Squaw Creek, show minimal signs of use. These vehicle trails represent an insignificant impact on the Timber Creek area as a whole.

Wilderness Suitability Analysis

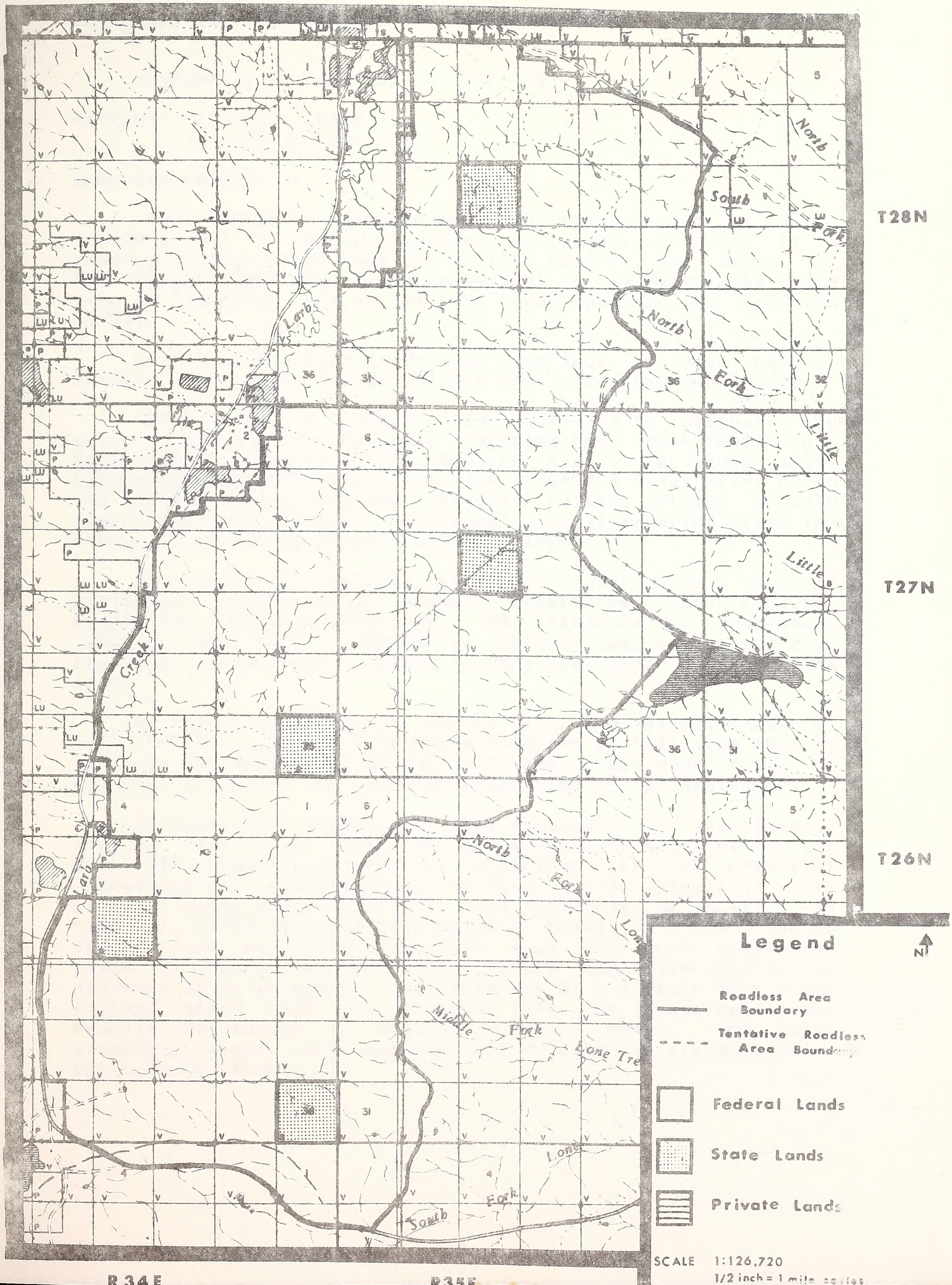
The impacts within this area have an insignificant effect on its natural integrity and apparent naturalness. The lack of topographic and vegetative screening, as well as the moderate size of the area, give it a low potential for solitude. Opportunities for primitive recreation are very low, primarily due to the lack of diversity in the area.

Off-site impacts significantly affect the wilderness character of this area. Traffic along county roads forming the northern, eastern, and western boundaries of Timber Creek would be visible from most of the area.

Recommendations

We do not recommend Timber Creek for further wilderness study. Although this area is free of significant impacts, it lacks other necessary wilderness attributes such as opportunities for solitude and primitive recreation.

MT-060-20 GRANT COULEE


T28N
T27N
T26N
R34E
R35E
Larb Creek
North Fork
South Fork
Little
Middle Fork
Lone Tree
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-020 - GRANT COULEE (TRA 25)

Acreage: 62,168 - Federal
3,200 - State

Area Description

Grant Coulee is approximately 18 miles south of Saco, Montana, and 45 miles southwest of Glasgow, Montana. It is bounded by Larb Creek Road and private land on the west; by the Pippin Spur Road and private land to the north; by Ridge Road to the west; and by the Larb Creek Road on the southern border.

Access is via Larb Creek Road from Saco, or down Federal Bentonite Road from Glasgow to the area's northeastern border.

Grant Coulee is traversed from southeast to northwest by very broad valley drainages entering Larb Creek (which runs north-south along the area's western side). A wide, level floodplain parallels Larb Creek for about 0.5 mile, after which the terrain rises, forming slightly rolling ridges between broad lateral drainages. Occasional glacial erratics break the textural pattern of these flattened ridges.

Vegetation is primarily shortgrass prairie with a very few scatterred cottonwoods around reservoirs, and riparian vegetation along the drainages. The presence of snakeweed, gumweed, and large amounts of prickly pear cactus and sage indicates rather heavy grazing in this area over a long time span.

We observed jackrabbit, coyote scat, and several herds of 5-12 antelope. Fewer hawks were observed in this area than in the more southern parts of Valley County. Mule deer might be expected to follow the riparian vegetation in the drainages.

We found much evidence of past occupancy by pre-historic man in this area. There are three separate sites of 17, 15, and 2 tipi rings, respectively. A further site has potential archaeological significance. We found a 4'X5' eliptical cairn of piled rocks about 3 1/2 - 4' tall surrounded by an eliptical ring of rocks and scattered piles of rocks. A broken, worked chert scraper was found along with some old bone fragments. Piles of rocks on the slopes above the site suggest the presence of drive lines. This site may be a buffalo trap where Indians drove herds of buffalo into the creek valley and trapped them against the encircling creek banks. The stone groupings might have something to do with the preparation of the buffalo flesh.

Human Developments

This area includes forty small reservoirs (0.5-3 acres) and approximately 45 miles (eight segments) of very low standard vehicle trails.

Fences in the area are all three or four strand on steel posts (posts are either black or orange in color). They extend approximately 42 aggregate miles in the area.

According to Terry Wilson (Range Conservation Supervisor in the Glasgow BLM office), much of this area was abused by grazing some 30 or 40 years ago. Evidence of this still exists when one observes the vegetation in the area. Also, the frequent occurance of bare,hardpan soils further indicates this overgrazed condition.

Approximately 12 percent of the total area is covered by bentonite mineral claims. Although at present the only observable developments are the claim stakes, indications are that these claim sites will be mined in the near future. The Federal Bentonite Company is currently making improvements on their processing plant and on the road to present mining sites just east of this area. If the claims in this area are mined then the enormity and duration of the impacts will be high or extremely high.

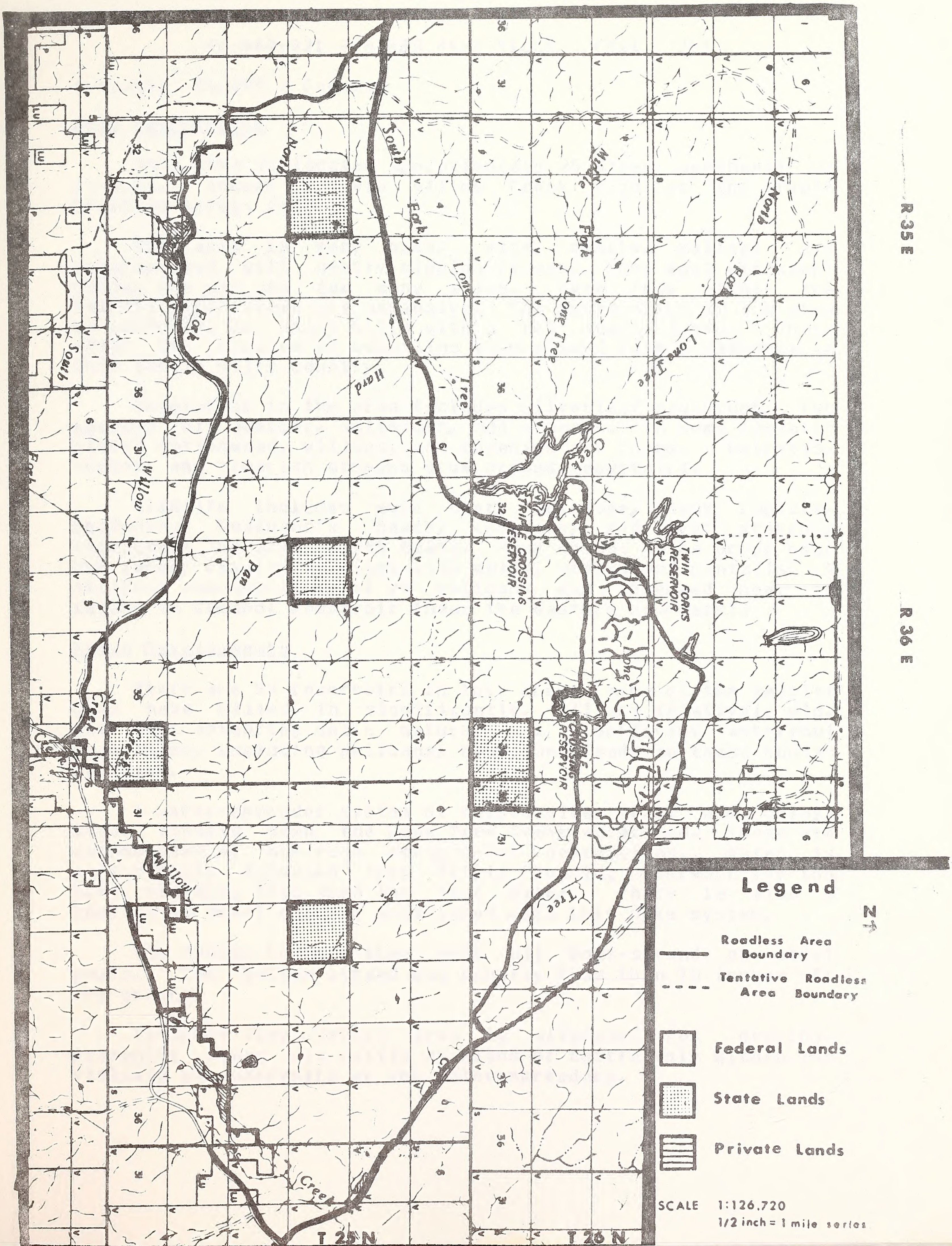
Wilderness Suitability Analysis

The Grant Coulee area is very large; its sheer size and the immensity of open sky above it give it a feeling of solitude and diminish or de-intensify the impact of the signs of man scattered through it. Yet its open quality at the same time serves as a backdrop against which intrusions are easily recognized. An individual can be seen from a distance of 4-5 miles within the area and this tends to decrease the potential for solitude in the area. A lack of diversity decreases the opportunity for primitive recreation. Resource conflicts appear inevitable in this area because of the extensive bentonite mining claims. Any attempt to mine these claims would destroy wilderness values .The possibility that this will occur is ensured by the existing claimant's rights and by the demonstrated commitment of Federal Bentonite to long-term mineral extraction in the area (as evidenced by its road and processing plant activities).

Recommendations

We do not recommend this area for wilderness study but do suggest that the cultural site in the northern part of the area be investigated further.

MARSH HAWK HILLS MT-060-021


R 35 E
R 36 E
T 25 N
T 26 N
North Fork
South Fork
Middle Fork
North Fork
Lone Tree
Lone Tree
Lone Tree Creek
Hard
Willow
Pan
South Fork
Creek
Creek
Willow
Tree
Creek
Long
TRIPLE CROSSING RESERVOIR
TWIN FORKS RESERVOIR
DOUBLE CROSSING RESERVOIR
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-021 - MARSH HAWK HILLS (TRA 26)

Acreage: 66,000 - Federal

Area Description

This area is located approximately 25 miles southwest of Glasgow. Access is via Willow Creek Road or the Triple Crossing Access Road.

The area is very open; wide, shallow valleys are interspersed with gently sloping ridges. From most windswept ridges one can see for many miles. Even from within the valleys the views are expansive. The western end of the area is sandstone and shale hills with a few gumbo domes. These offer the illusion of mountains when viewed from a distance in this gentle hills country.

Vegetation in the area includes silverleaf sagebrush, two species of juniper, saltbrush, and grasses. In some isolated places cottonwood, willows, and rosehips are found. Cattails, sedges, and riparian grasses grow around reservoirs.

Wildlife includes mule deer, antelope, many raptors, including Swainson's hawks, kestrels, and ever present, throughout the area, marsh hawks. Many common terns occur near the larger reservoirs along with gulls, grebes and pintails. A striking concentration of 24 pelicans was observed near an island in Gutshot Reservoir (near the eastern boundary).

Human Developments

There are 59 reservoirs in this area; many of the smaller ones have filled in significantly. All are relatively old, with most appearing quite natural. A significant waterfowl population, including pelicans, nests and feeds on these bodies of water.

A water-spreader system of raised dikes traps and delays water flowing down the Lone Tree Creek watershed. These are accompanied by numerous scraped-out depressions. Water is periodically released from Triple Crossing Reservoir (by the BLM), flooding this area for five miles. There is also a corrugated steel curtain associated with this dike system.

The fences in the area were all four-strand on steel posts. The bottom strand was usually less than 18 inches off the ground.

Although the entire area is allocated for grazing, presently there are cattle or signs of cattle only within the vicinity of reservoirs or the water-spreaders.

All of the vehicle trails within the area are overgrown and virtually unused. Only a few were actually constructed (presumably by the USGS).

Wilderness Suitability Analysis

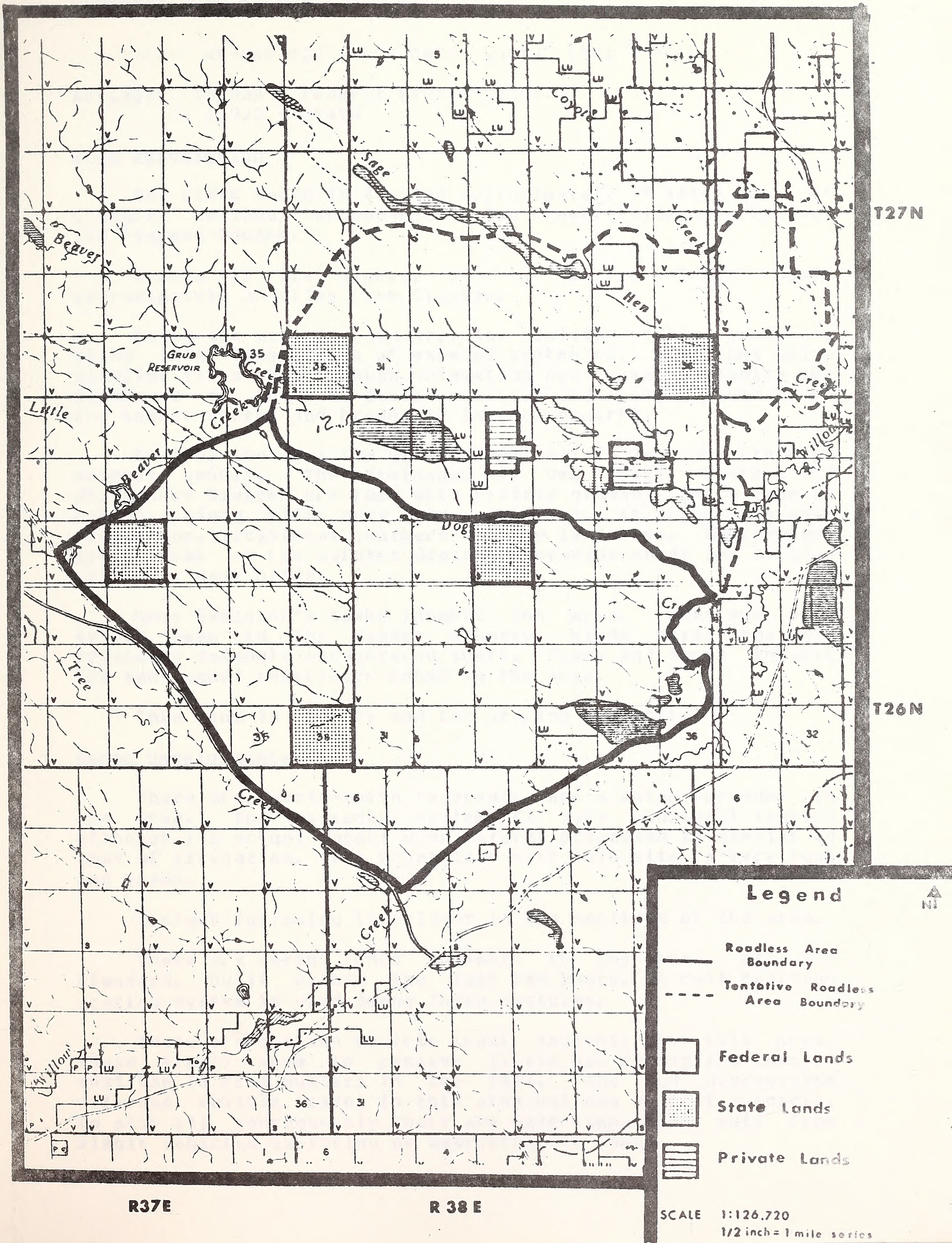
This area offers a strong sense of solitude, largely because of its size. However, the nature of its topography and its lack of vegetation would limit this experience to only a few parties at a time. There are many developments which compromise wilderness values--most significant is the water-spreader network in the north portion. Here, a raised system of retaining dikes and artificial ponds is periodically flooded by BLM. This affects over five square miles of land.

The primitive recreation opportunity is low, with activities limited to hiking, hunting, wildlife observation, and hunting for arrowheads and tipi rings.

Recommendations

We recommend further wilderness study for this area contingent on a boundary change. We suggest the northern boundary be located on the ridge immediately south of the Triple Crossing Access Road in order to exclude the water-spreader system.

MT-060-022 DOG CREEK NORTH


T27N
T26N
R37E
R 38 E
Grub Reservoir
35
36
31
Little Beaver Creek
Beaver
Sage
Coyote
Creek
Hen
Creek
Willow
Dog
Creek
Tree
Creek
Creek
36
32
Willow
LU
P
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-022 - DOG CREEK NORTH (TRA 27-1)

Acreage: 26,030 - Federal (TRA-50,350)
1,920 - State

Area Description

Dog Creek North is located approximately 15 miles south of Glasgow, Montana, encompassing Dog Creek, Wilderness Coulee, and Pearson Coulee.

Access is via Highway 24 to Willow Creek Road, approximately 30 miles from Glasgow.

Along the western boundary, low rolling hills gradually blend into long ridges of exposed bentonite. Brilliant white alkaline flats seen through shimmering heat waves emphasize the harshness of the semi-desert country, and provide contrast to the somber greens and browns of the dry prairie.

Towards the east the grass grows taller and the terrain becomes gentle. The drainages of Dog Creek, Pearson and Wilderness Coulees are lush with prairie grasses. Wild rose is common, along with sage and saltbrush. At slightly higher elevations, occasional junipers dot the landscape. Cottonwoods along some of the moister drainages provide shade and nesting sites for many birds.

Many Swainson's hawks inhabit the area. Antelope were seldom seen in the desert country, birds being the only creatures commonly encountered there. Geese and ducks inhabit the many small reservoirs found in the area.

This land is used by man for grazing of cattle.

Human Developments

There are twenty-seven reservoirs and a water-spreader in the area. The spreader system is very unnatural looking although its actual impact upon natural processes is similar to that of irrigation. The vegetation near this site is very lush and green.

Contour furrowing is evident in two sections of the area.

There are seven fence segments in the area, all BLM standard, built within the last few years. A rest rotation grazing system is used among three pastures.

There are sixteen vehicle trail segments in this area. These trails seem to receive little use during the summer; most use is from hunters in the fall. The BLM discourages off-road vehicle travel in this area but has no real authority to stop it; consequently there are many compaction ruts from single vehicles exploring or searching for game.

Wilderness Suitability Analysis

The impacts in this area affect natural integrity to a minimal extent and they are moderately apparent to most visitors. Opportunities for solitude and primitive recreation are both low. The size of the area would give it a high potential for these attributes, but topographic and vegetative screening are limited. Recreational opportunities are currently limited to hunting.

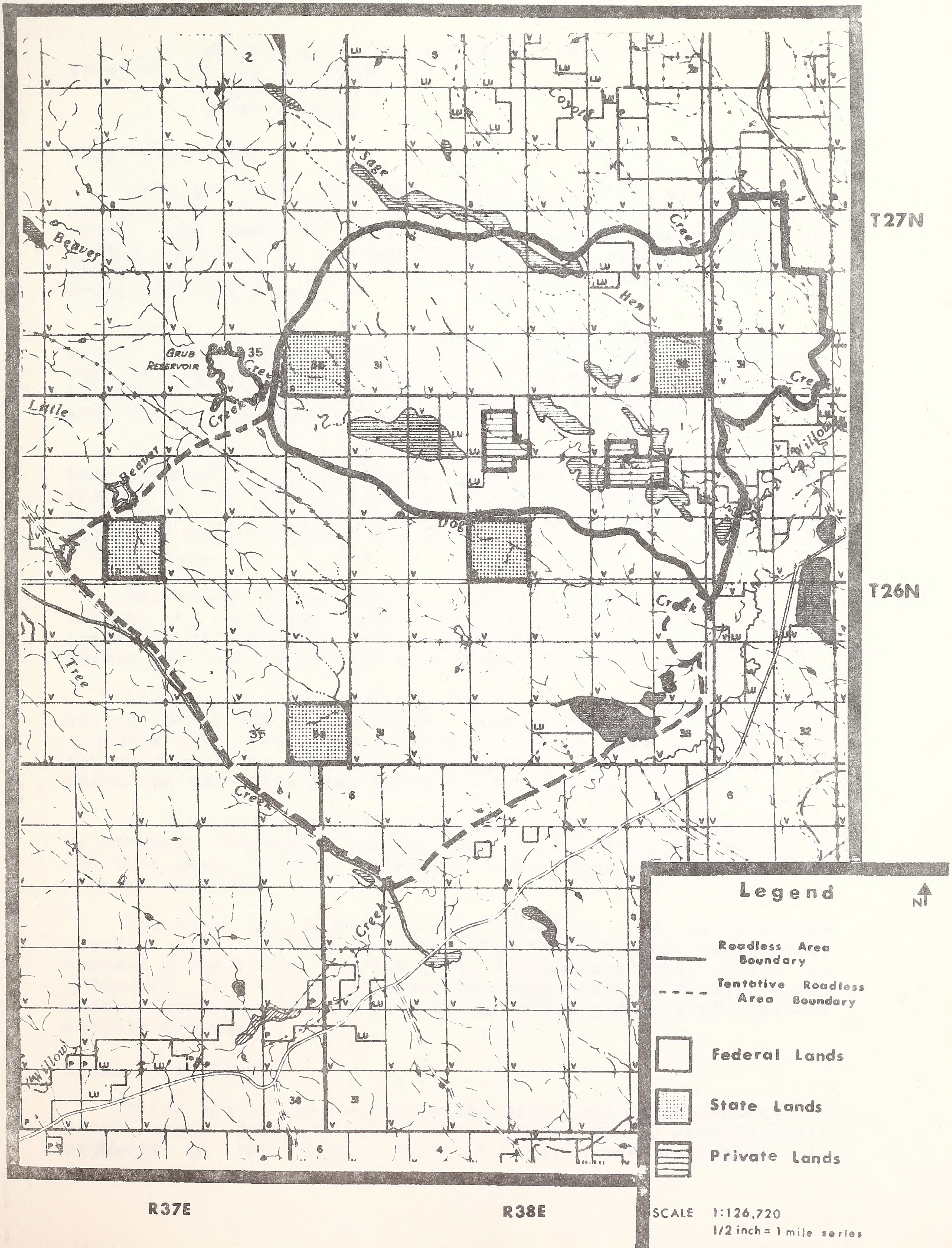
Some cultural features are present in this area; we found several tipi rings.

Recommendations

We do not recommend Dog Creek North for further study because it lacks significant opportunities for solitude and primitive recreation, and the human developments in the area are very visible to most visitors.

Originally this area and Sage Hen Creek (MT-060-023) formed a single tentative roadless area. During the field inventory, a vehicle trail dividing these two areas was judged to meet the BLM definition of a road. As a result, we considered the two areas separately during the remainder of this study.

MT-060-023 SAGE HEN CREEK


T27N
T26N
R37E
R38E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
Sage Hen Creek
Coyote
Beaver
Grub Reservoir
Little Beaver Creek
Dog Creek
Willow
Tree
Creek

MT-060-023 - SAGE HEN CREEK (TRA 27-2)

Acreage: 24,311 - Federal
1,033 - Private
1,280 - State

Area Description

Sage Hen Creek is located approximately ten miles south of Glasgow via the Beaver Creek Recreational Access Road. This access road forms its northern and eastern boundaries, and Willow Creek is its southern boundary. The western boundary is Wilderness Coulee, which forms a common boundary with the Dog Creek roadless area.

Access to this area is best from the north along the Beaver Creek Recreational Access Road. This county road parallels the area for 9-10 miles on the north, offering access to Coyote Creek, Sage Hen Creek, and Beaver Creek Valley. Access from the south is via the Willow Creek Road.

This area is typified by rolling hills and gumbo ridges of bearpaw shale. On these ridges there are many exposed boulders brought to the surface by frost action or deposited as glacial erratics. The Beaver Creek drainage itself has deep silt and clay soil that is easily carved and eroded by the runoff after a heavy rain.

The creek bottoms have scattered cottonwoods and low shrubs. In contrast, these ridges for the most part are barren bentonite ridges with little vegetation. The ridges along Coyote and Sage Hen Creeks have thicker prairie grass.

There is little flowing water in the area except during spring runoff and after storms. Most of the time this area has a desert-like environment, with sagebrush and prickly pear cactus dominating the ground vegetation. The lack of water and shade can make this area inhospitable in summer.

We observed antelope, Swainson's hawks, mourning doves, nighthawks, kestrels, geese, and ducks. One could expect to see mule deer, badgers, prairie dogs, prairie falcons, and perhaps pelicans.

The major use of this area is grazing. It is entirely covered with allotments. In the fall, hunting temporarily becomes a major use. In the past, Indians used this area, as evidenced by tipi rings along the ridge east of Beaver Creek. Whites homesteaded the bottom lands, where a couple of private parcels remain.

Human Developments

There are 11 reservoirs in the area, and seven segments of metal post, 4-strand wire fence. There are 12 vehicle trail segments in the area. Most of these are beginning to

revegetate. Primary use is from hunters in the fall, with some providing access to pasture gates.

Wilderness Suitability

Because of a lack of significant impacts in the area, natural integrity is high, yet many of the impacts are apparent to visitors.

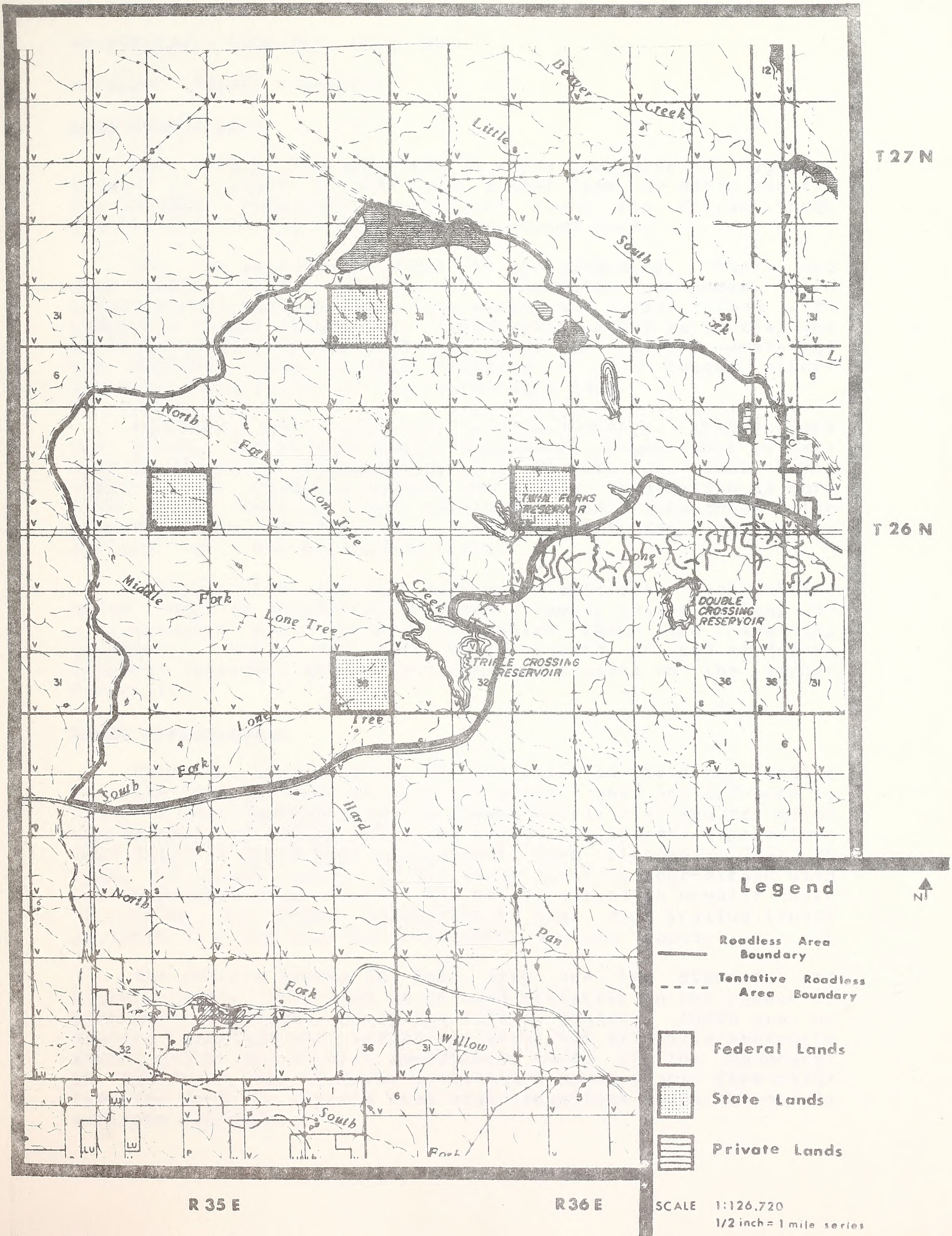
Opportunities for solitude and primitive recreation are both low, because of a lack of vegetative and topographic screening and diversity.

Recommendations

Because of a lack of significant wilderness attributes, we do not recommend this area for further study, but suggest that the present management of the area continue.

Originally this area and Dog Creek North (MT-060-022) formed a single tentative roadless area. During the field inventory, a vehicle trail dividing these two areas was judged to meet the BLM definition of a road. As a result, we considered the two areas separately during the remainder of this study.

MT-060-024 LONE TREE


T 27 N
T 26 N
R 35 E
R 36 E
Beaver Creek
Little
South Fork
North Fork
Lone Tree
Middle Fork
Lone Tree
Creek
Lone Tree
South Fork
TWIN FORKS RESERVOIR
DOUBLE CROSSING RESERVOIR
TRIPLE CROSSING RESERVOIR
Hard
North
Pan
Fork
Willow
South Fork
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
N
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-024 - LONE TREE (TRA 28)

Acreage: 43,520 - Federal

Area Description

This area is approximately 35 miles southwest of Glasgow. Access is across federal land, either from the north via the new Bentonite Mine Road or from the south via Willow Creek County Road and the triple crossing access road.

The area offers some diversity of topography. There are both wide flat valleys of expansive openness, with uninterrupted views of over five miles, and hilly areas with immediate visual boundaries. Topographic relief is subtle, the hills and ridges of bentonite and gumbo are visibly weathered and rounded. The general flatness of the region offers eye-stretching vistas of the surrounding land.

Vegetation here could only be termed sparse. Grasses are not thick, and in many places vegetative ground cover is less than 50 percent.. Accompanying the grasses are rose hips, silver sage, creeping juniper and cactus. Vegetation is more lush around most of the reservoirs and throughout the water-spreader system and includes cattails, shrub-like willows, and a few cottonwood trees.

Wildlife sited includes mule deer, antelope, jackrabbits, marsh hawks in abundance, swainson's hawks, golden eagles, and a long-eared owl. Around reservoirs there are avocets, sandpipers, gulls and many ducks--upward of 600 on Triple Crossing reservoir alone. Pelicans are present on the larger reservoirs.

Human Developments

There are approximately 50 reservoirs in the area, ranging in size from 1/8-acre to over 600 acres. Most are 1/2-acre in size. A water-spreader system covers nearly six square miles and consists of raised dikes and bladed (bulldozed) depressions that create a marsh type environment when flooded. Over 25 miles of fence exist in the area; most is four-strand with silver-colored steel posts. The bottom strand is usually above 18 inches and fence visibility is low. Most grazing impact consists of trampling near reservoirs and cow tracks.

The vehicle tracks in this area are low standard and lightly used. They seem to be used primarily in the summer by government employees and in the fall by hunters. There are no mineral developments within the area, but extensive bentonite mining claims are located immediately north of the boundary. In addition, the Federal Bentonite Company plant, five miles from the area, is visible from high ridgelines along the area's northern boundary.

Wilderness Suitability Analysis

Wilderness values are present here. The area offers solitude, enhanced by its size, the hilly portions of one-half of the area, and the expansiveness of the rest. This sense of solitude is fragile. Distant vehicle traffic along boundary roads is visible from 20 percent of the area.

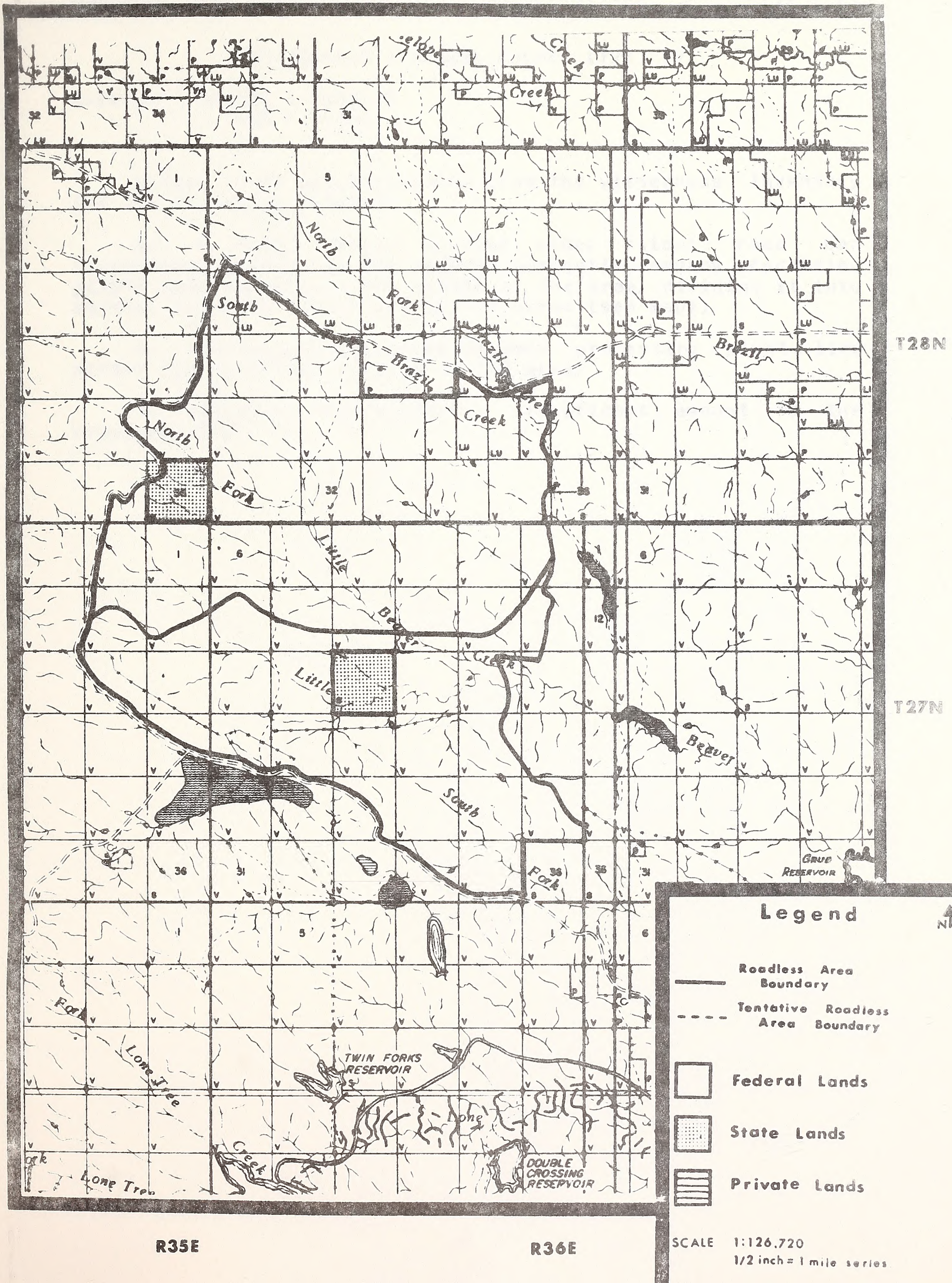
Opportunities for primitive recreation are present. Visitors can hike, observe wildlife, hunt, and even fish to a limited extent in the larger reservoirs.

The natural integrity of the area is high, yet "man's imprint" is noticeable. Reservoirs are visible for miles in this country. Bentonite mining immediately to the north presents a significant off-site impact. A major road allows access to mining claims, and extends to the area boundary.

Recommendation

We do not recommend wilderness study for this area because of the on-site water-spreader system and the off-site bentonite mines and roads immediately to the north of the area, along with very conditional opportunities for solitude and unexemplary opportunities for primitive recreation.

MT-060-025 BRAZIL CREEK


North Fork Brazil Creek
South Fork Brazil Creek
North Fork
Little Beaver Creek
Little
Beaver
South Fork
Lone Tree Creek
Lone Tree
Fork
Lone
Grub Reservoir
Twin Forks Reservoir
Double Crossing Reservoir
T28N
T27N
R35E
R36E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-025 - BRAZIL CREEK (TRA 29)

Acreage: 22,681 - Federal
640 - State

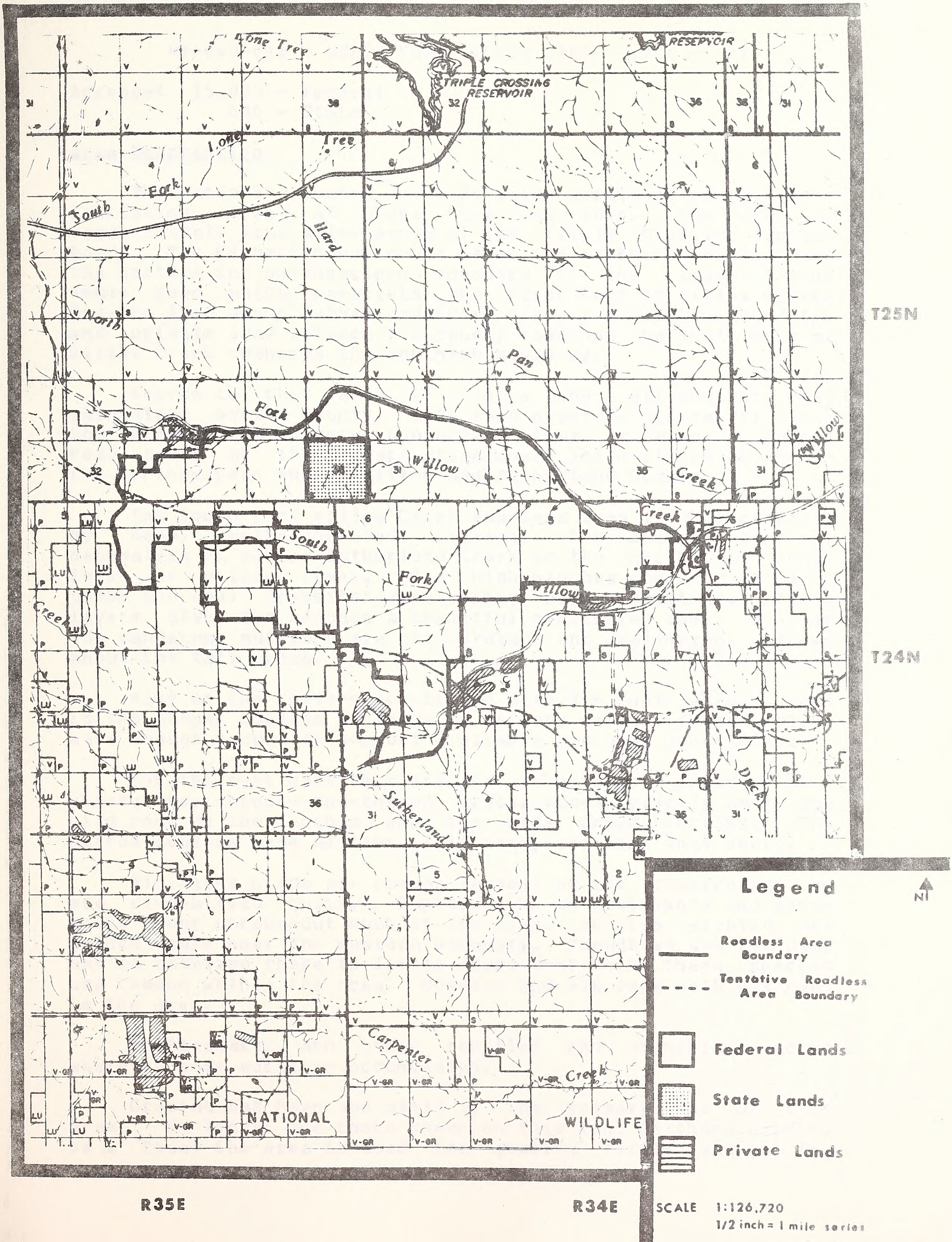
Brazil Creek was eliminated from the wilderness inventory for the following reasons:

1. a high-standard 30-foot wide, raised road bed (providing access to the Federal Bentonite Company processing plant) crosses through the middle of the area, dividing it into smaller units of 12,057 and 10,624 acres (see map);

2. the Federal Bentonite Company processing plant lies within the northeast portion of the area;

3. bentonite leases cover a significant amount of the roadless area.

MT-060-026 SOUTH FORK WILLOW CREEK


Lone Tree
TRIPLE CROSSING RESERVOIR
RESERVOIR
South Fork Lone Tree
Hard
North Fork
Pan
South Fork Willow Creek
Willow Creek
Sutherland
Duck
Carpenter Creek
NATIONAL
WILDLIFE
T25N
T24N
R35E
R34E
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
N
SCALE 1:126,720
1/2 inch = 1 mile series

MT-050-026 - SOUTH FORK WILLOW CREEK (TRA 30)

Acreage: 15,009 - Federal
640 - State

Area Description

This area is located about 25 miles northwest of the Pines Recreation Area at Fort Peck Reservoir. The area is approximately four miles south of the Triple Crossing Access Road. The Etchart stone house is on the northern boundary and the eastern and northeastern boundary is the Etchart Stone House Road which parallels the North Fork of Willow Creek. Private land along Sutherland Creek forms the western boundary, and private land between the county road and the South Fork of Willow Creek composes the southern boundary.

Access to this area is via a good all-weather road maintained by the county. This road provides access all along the northern and eastern boundaries. There is also a county road south of the Etchart stone house which allows access to the northwestern end of Willow and Sutherland Creeks.

The South Fork Willow Creek roadless area is characterized by deep, well-vegetated coulees. The coulees are all headwaters of either Sutherland Creek or the north and south forks of Willow Creek. The high benches composed of black gumbo and coal deposits are capped with sandstone. These layers give the benches a beautiful stratified look. Some of the sandstone outcrops are now broken and weathered, strewn about the tall grass.

Many of the coulees are filled with 4-6 foot shrubs, and in the deeper coulees it tends to be very dense. These coulees have enough browse to support a sizable big game population.

For the most part this area is a shortgrass prairie with wheatgrass, needle-and-thread grass, yucca, prickly pear, and wild rose on the benches and the wide creek bottoms. The narrow coulees have willows, tall sage, and some shad scale.

Migratory birds are common in most of the reservoirs, as are ring-billed gulls. Raptors such as Swainson's and marsh hawks occur throughout much of the area. We also sighted one golden eagle near the western boundary. Though we saw few deer and no antelope there is little doubt that both these species are common within the area. Coyotes and elk were both observed in the area.

Rattlesnakes and other reptiles and amphibians occur wherever some moisture accumulates.

Grazing has been and still is the primary use of this area. No longer are there sheep on this land as there used to be . Today the area is used for grazing cattle and a few

horses.

There are many rock cairns in this area, believed to be of prehistoric origin.

Human Developments

There are thirteen reservoirs of varying size in this area. Disturbances associated with these reservoirs are site specific and do not significantly affect the natural integrity of the area as a whole.

Some horse and cattle grazing occurs in this area. It is concentrated primarily in the wide, shallow valleys in the eastern portion along the north and south forks of Wilson Creek.

There are seven vehicle trails in this area. Most of them show signs of minimal use. Two of these lead to reservoirs and the remainder appear to be used for fence maintenance, cattle operations, or hunting. The other five roads are on private land and do not extend into federal lands within the boundary.

Wilderness Suitability Analysis

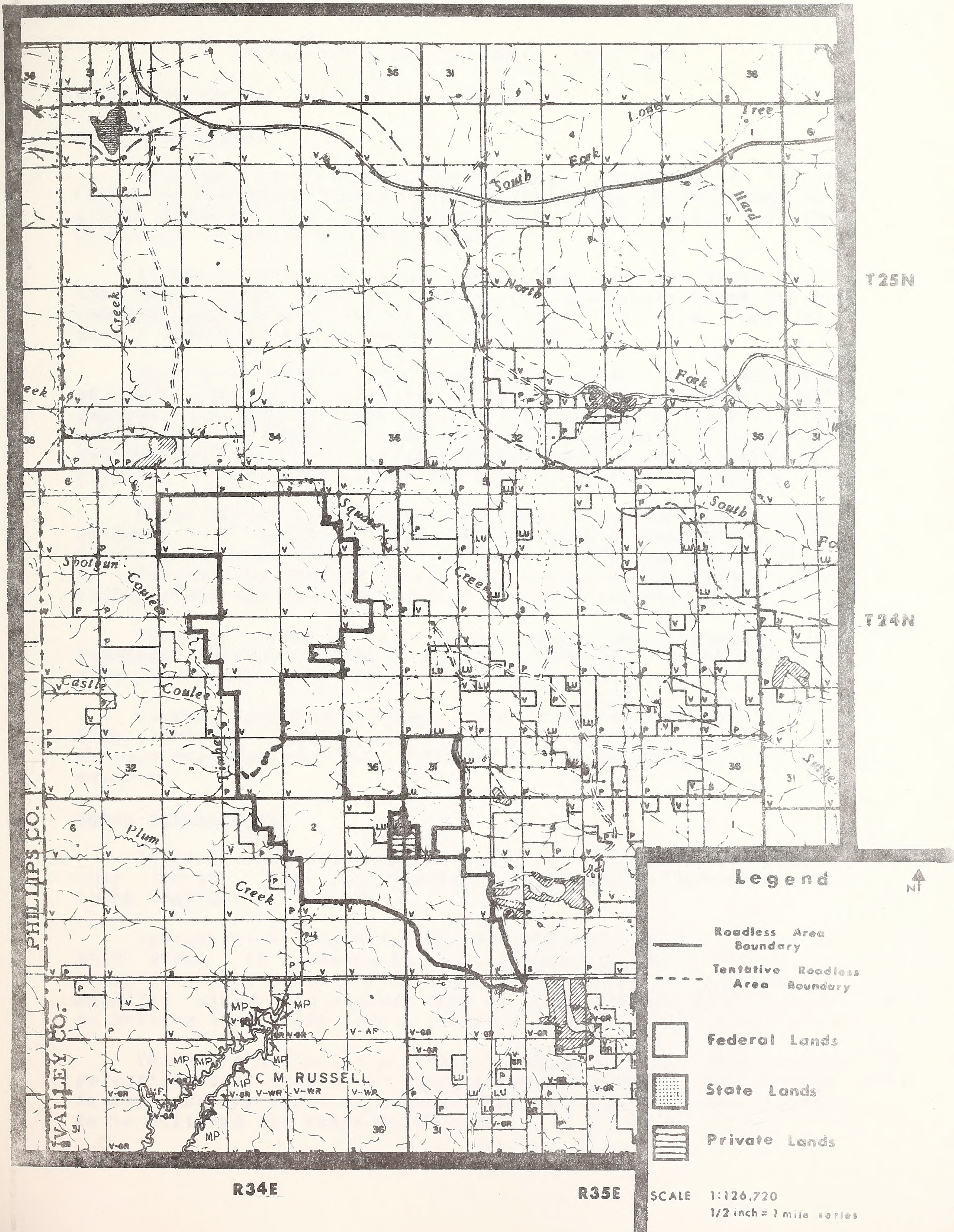
The natural integrity of this area as a whole is relatively intact. Several of its developments, however, would be readily apparent to the average visitor.

Although there is little vegetative screening in most of the area, the head of each main drainage has enough topographic diversity to screen several parties from one another with some degree of solitude. The area has moderate to high potential for primitive recreation.

Recommendations

We recommend this area for wilderness study because of its high potential for primitive recreation, coupled with natural beauty and a lack of human developments.

MT-060-027 SQUARE CREEK


T25N
T24N
R34E
R35E
South Fork
Lone Tree
Hard
North Fork
Creek
Square Creek
South Fork
Spotgun Coulee
Castle Coulee
Timber
Plum Creek
PHILLIPS CO.
VALLEY CO.
C M. RUSSELL
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-027 - SQUARE CREEK (TRA 31)

Acreage: 11,456 - Federal (TRA-5,312)

Area Description

This area is 40 miles south of Saco, adjacent to Timber Creek on the west, Square Creek on the north, private land and a well-traveled road to the Burke Ranch on the east, and the Charles M. Russell Wildlife Refuge.

Access is on Willow Creek County Road and then south along the Burke Ranch Road or north on the Square Creek Trail. Another possible route would be Lark Creek Road from Saco and then a southern road to Square Creek Trail.

This is an area of flat-topped fingers of land separated by deep drainages dropping rapidly to a lower elevation and emptying into Square Creek on the north or Timber Creek to the west. The topographic variation is emphasized by sandstone outcroppings, which have served sheepherders a ready quarry for building cairns(these cairns may be of prehistoric origin).

North slopes are sparsely vegetated with ponderosa pine. Although the southern half of the area is characterized by sagebrush, the northern half sustained a fire some years back, as witnessed by charred fenceposts, and is verdant with grass. Valley areas contain lush vegetation with some ponderosa pine.

There are signs of elk passage. Mule deer, coyote, and possibly antelope might also be expected. A portion of a mile-long prairie dog town is also in the area.

Cairns, standing 5-6 feet tall and well-constructed of flat sandstone, might be historic and might be the work of sheepherders (we saw the remains of a sheepherder's wagon nearby).

Human Developments

There is only one reservoir in this area, well-hidden in a deep coulee. The area immediately surrounding the reservoir lacks vegetation.

Approximately six miles of four-strand fence is located in this area. It appears to be of relatively recent origin. A severed elk leg hanging from the fence, forcibly interlocked parallel wires and a great deal of suspended elk hair lead us to believe that these fences impede a transient elk population.

There are 5.5 miles of vehicle trails in the area, used primarily for access to hunting vantage points. One vehicle trail, however, leads to a reservoir, and a few others appear to be utilized for fence maintenance.

Off-site impacts include several shiny aluminum sheathed buildings along Timber Creek, visible from the southwest part of the area.

Wilderness Suitability Analysis

Standing on one of the many sandstone cliffs that bound the high plateau-like ridges, one has a feeling of isolation and separation from the prairie land below. This area definitely provides opportunities for solitude. The vast immensity of the bluffs, coulees, and prairie continuing to the horizon, with the vistas of the rugged, undisturbed drainage of Timber Creek, and glimpses of the broken country near Fort Peck Reservoir reinforce the feeling of solitude in a timeless land that is seemingly unaffected by humans.

The relatively undisturbed nature of the area enhances the primeval qualities of the surrounding landscape. There are only four disturbances in this area, all minor. The only reservoir is hidden in a deep coulee and is not easily seen. The few vehicle trails are already semi-overgrown and quickly revegetating. There are grazing allotments here, but very little sign of grazing--elk and deer scat are as prevalent as signs of livestock. Fences are the most visible disturbance in an otherwise pristine area. Some of the fences have dark green metal posts that are indistinguishable at distances greater than .3 miles.

There are moderate opportunities for primitive recreation in this area. Hunting is the primary recreational use at present. Elk use this area for winter range, providing amateur ecologists and wildlife buffs a chance to see and photograph these animals in their native habitat. Other opportunities include hiking, backpacking, horseback riding, nature study, cross country skiing and winter camping.

Recommendations

We feel that this area merits wilderness study because of the lack of major developments and disturbances, coupled with its high quality and pristine nature.

We also recommend that a 5,960 acre portion of the Lena Coulee Roadless Area (55) be included as part of the Square Creek area. (See Lena Coulee, pp., 58 for further explanation.)

Off-site impacts include [illegible] pollution [illegible] at the area.

Wilderness [illegible]

Depending on one of the [illegible] definitely [illegible]

[illegible]

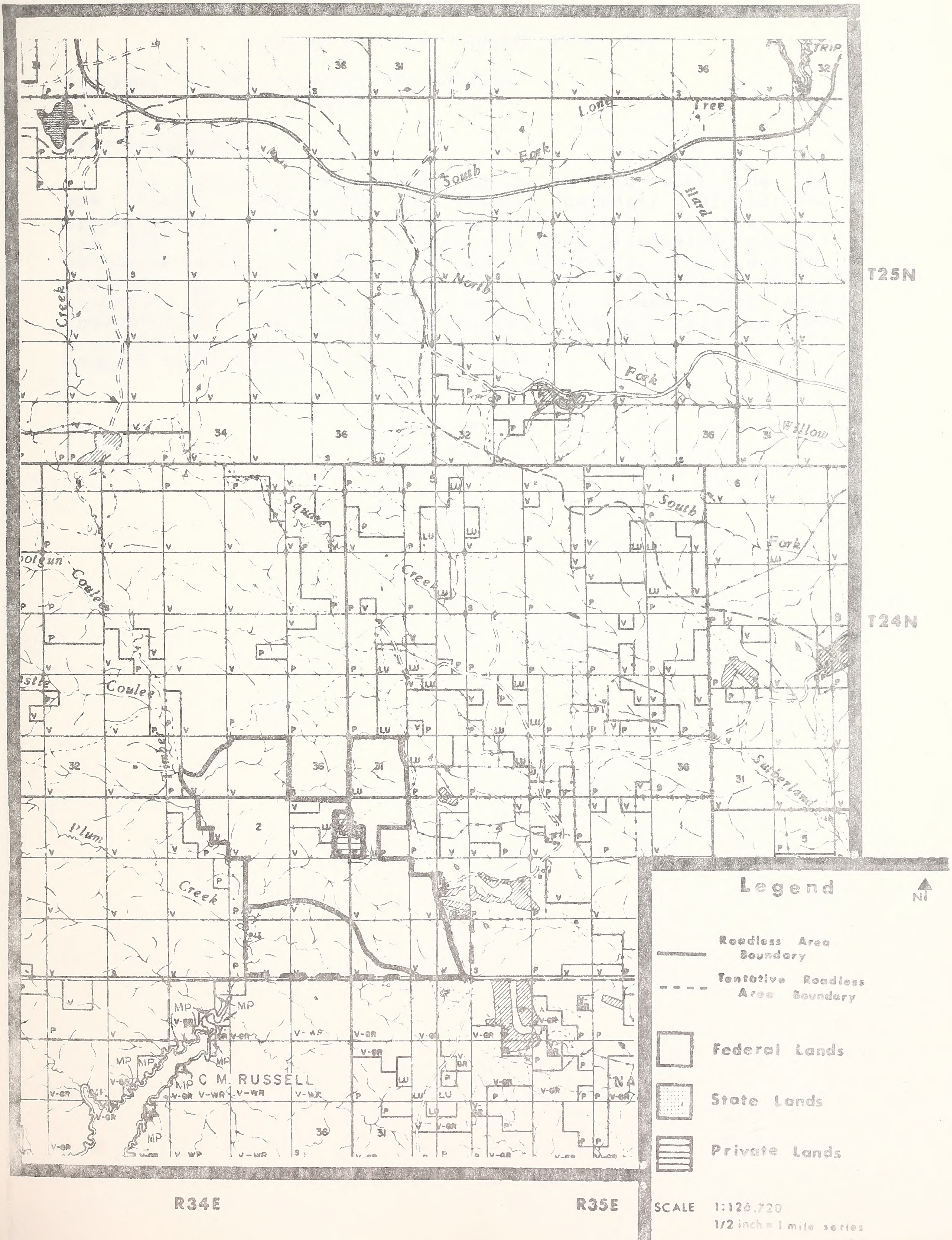
[illegible]

[illegible]

[illegible]

[illegible]

MT-060-028 LENA COULEE


T25N
T24N
R34E
R35E
Lone Tree
South Fork
Hard
North Fork
Willow
Squaw Creek
South Fork
Shotgun Coulee
Castle Coulee
Timber
Sutherland
Plum Creek
Creek
C M RUSSELL
MP
V-GR
V-WR
LU
TRIP
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

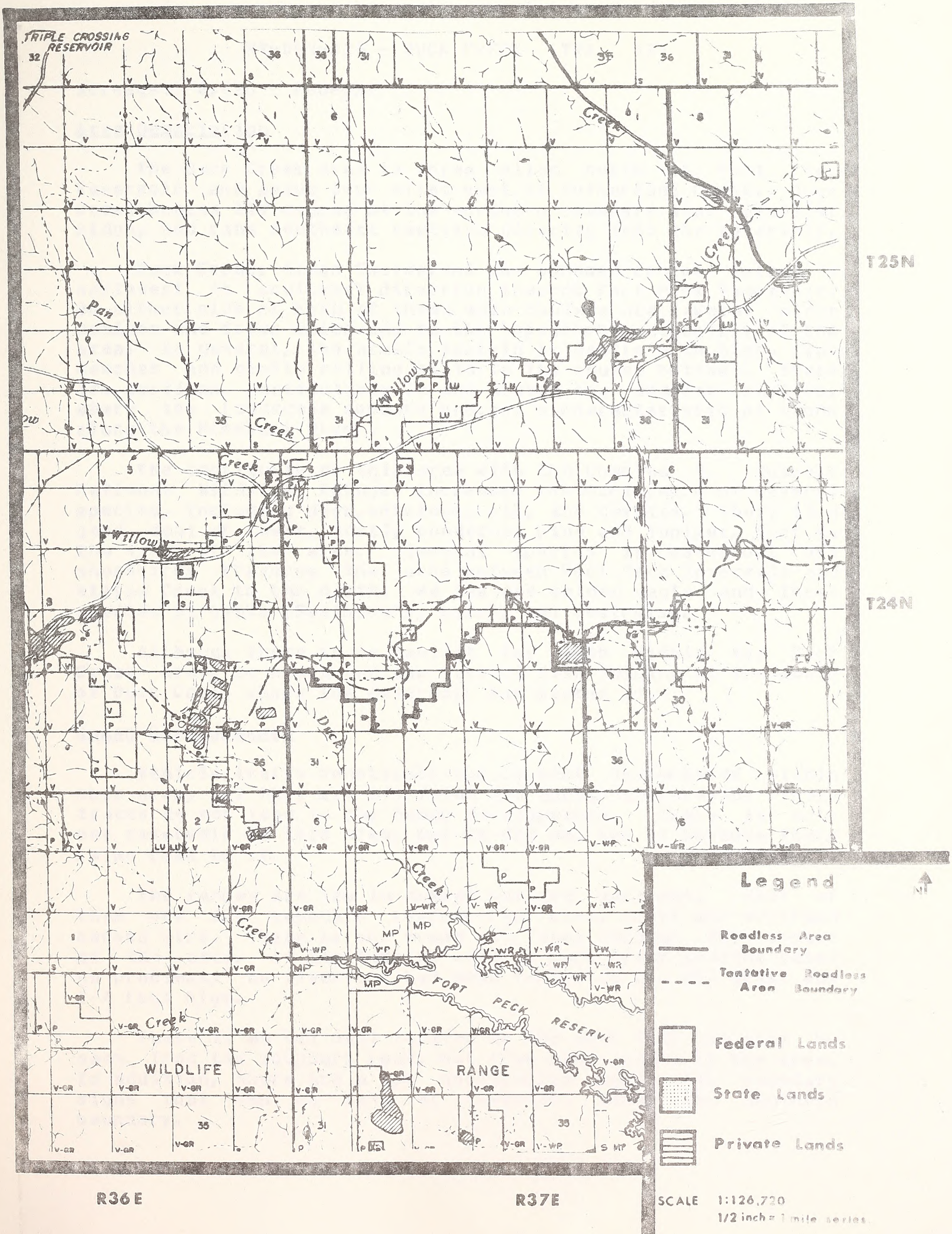
MT-060-028 - LENA COULEE (TRA 55)

Acreage: 7,372 - Federal (TRA-8,984)
180 - Private

Area Description

Two vehicle trails in the Lena Coulee area meet the the BLM "road" definition and require boundary adjustments. Approximately 1500 acres in the southern portion of the area and 300 acres on the eastern side were eliminated from the wilderness inventory because of these two roads. The remaining roadless area is 7,372 acres and was not eliminated from the inventory due to its contiguity with the Square Creek area (MT-060-027). We recommend joining these two areas and have presented one common area description for both on page 56 (Square Creek description).

MT-060-029 DUCK CREEK


TRIPLE CROSSING RESERVOIR
Pan
Willow
Creek
Willow
Creek
Duck
Creek
Creek
FORT PECK RESERVOIR
WILDLIFE
RANGE
T25N
T24N
R36E
R37E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-029 - DUCK CREEK (TRA 32)

Acreage: 6,426 - Federal

Area Description

The Duck Creek area is three miles north of Fort Peck Reservoir and about four miles west of Sutherland Creek. Duck Creek begins its course at the northern boundary near Shufeldt Ridge, and runs southeast emptying directly into the reservoir.

Duck Creek, Kings Coulee, and one unnamed coulee follow a northwest to southeast direction towards Fort Peck Reservoir. On either side of each of these main coulees are several minor coulees and draws which add to the topographic diversity of the area. In general, the area's terrain is gentle with high, flat benches and gentle rolling hills in the coulee bottoms. There are portions, particularly in and around the smaller coulees, where the landscape appears broken, a characteristic of lands along the Missouri River.

The contiguity of this area with the Charles M. Russell National Wildlife Refuge increases the occurrence of several species, including deer, antelope, elk, and coyotes. There is a good deal of cover, mostly ponderosa pine and juniper, just to the south of the area. Several species of waterfowl and shorebirds traverse the area between Fort Peck Reservoir and Willow Creek to the north. We saw one golden eagle and three species of hawks (Swainson's, marsh, and kestrels).

Although there is no habitat for fish within the Duck Creek area, we heard and saw several fish jumping at the mouth of Duck Creek where the reservoir has backed up.

Human Developments

Vehicle trails constitute the largest disturbance within this area, but they are all faint and appear untraveled. These tracks do not lead to any human developments. There is only one reservoir in this area, but we did not see it because there is no road to it.

The fences are few in number but are apparent. Most of them are BLM boundary fences--red steel posts and 4-strand barbed wire. There is one brand new fence through the center of the area. At the time we were in Duck Creek grazing posed no problems; no livestock had been turned in and the grass was 2-4 feet high.

There is an oil well located in the area that can only be seen from the boundary road, not from most places in the area. In addition, there are a few unobtrusive white CMR boundary signs that can be seen at intervals along the southern boundary.

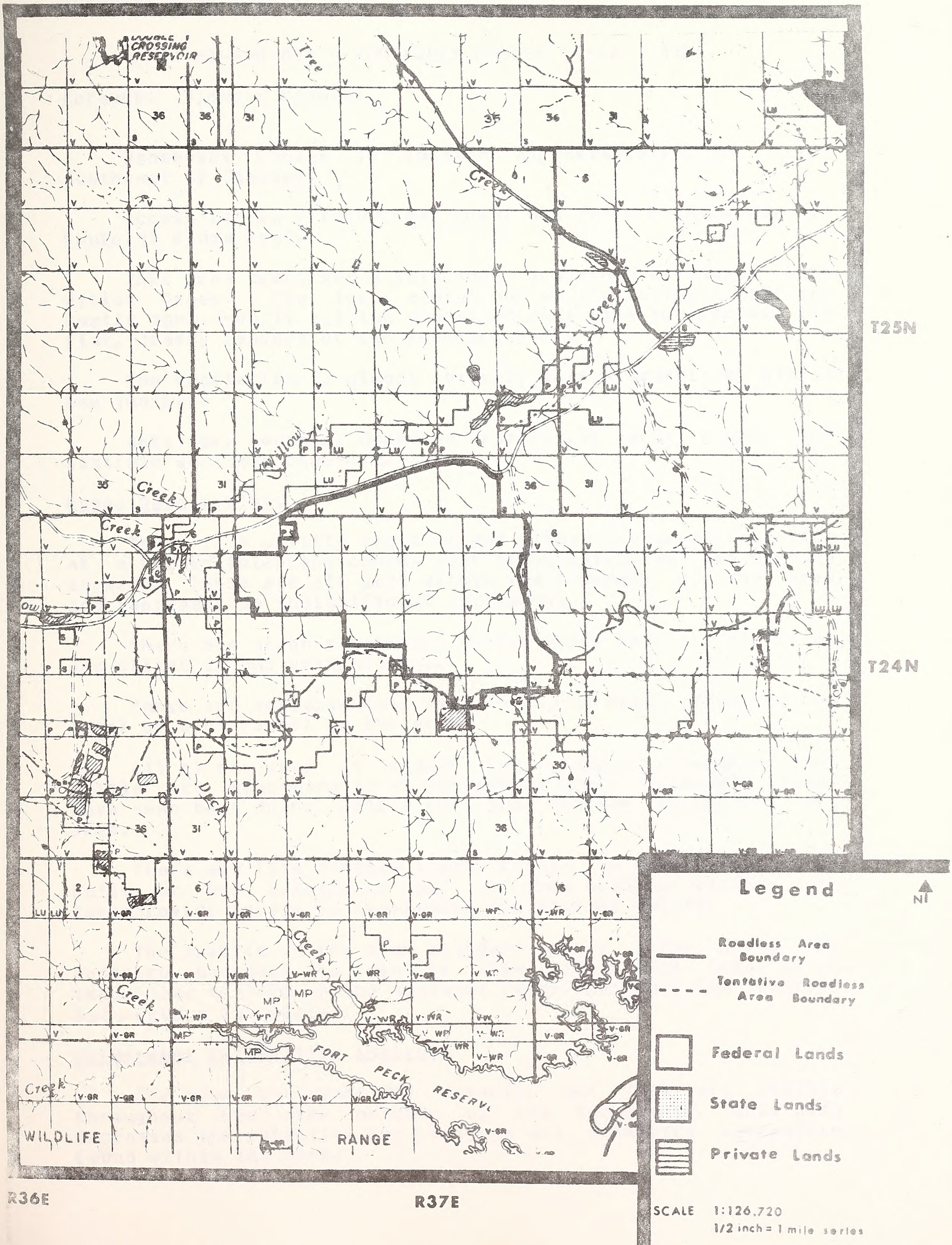
Wilderness Suitability Analysis

This area, though small, is quite remote and aesthetically pleasing, with few noticeable intrusions. The area is contiguous to the steep coulees and timbered ridges of the CMR National Wildlife Refuge, thus adding to its ecological diversity. Opportunities for solitude and primitive recreation are both moderately high. This area also includes significant supplemental wilderness attributes, particularly scenic quality.

Recommendations

Because of its contiguity with the Charles M. Russell National Wildlife Refuge and its apparent wilderness qualities, we recommend this area for wilderness study.

MT-060-030 ROOSEVELT COULEE


DOUBLE CROSSING RESERVOIR
Tree
Creek
Creek
Willow
Creek
Creek
Creek
Duck
Creek
Creek
Creek
FORT PECK RESERVOIR
WILDLIFE
RANGE
T25N
T24N
R36E
R37E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-030 - ROOSEVELT COULEE (TRA 33)

Acreage: 7,862 - Federal

Roosevelt Coulee is located approximately 30 miles southwest of Glasgow.

Access is via Willow Creek Road, Old Ninth Point Road, and Shufeldt Ridge Road.

This area comprises a watershed draining northward into Willow Creek. The lower elevations of the northern half are mostly open, gently rolling grassland that rise to become the flat, grassy benches of the southern half.

The vegetation is almost entirely sparse grassland, with a few juniper.

Antelope, rodents, ducks on reservoirs, marsh hawks, and kestrels were all observed.

Human Developments

There is a utility right-of-way within the area consisting of a buried telephone cable, four relay boxes, and two warning markers. These are all just within the boundary of the area and represent an insignificant intrusion.

There are seven reservoirs in the area, several of which are silted in and revegetating.

There are approximately eight miles of fence (4-strand on metal or wood posts) in the area.

All of the area is leased for grazing. Impacts from cattle are concentrated at reservoirs where surrounding areas have been beat down. Cattle ruts are visible throughout the area.

There are five vehicle trails within the area. None were built or are maintained but all show signs of minimal use. They provide access to reservoirs and vantage points.

The traffic on the high standard county roads along the northern boundary is visible from within the area, as is occasional traffic on the seasonal roads that form the eastern and western boundaries.

Wilderness Suitability Analysis

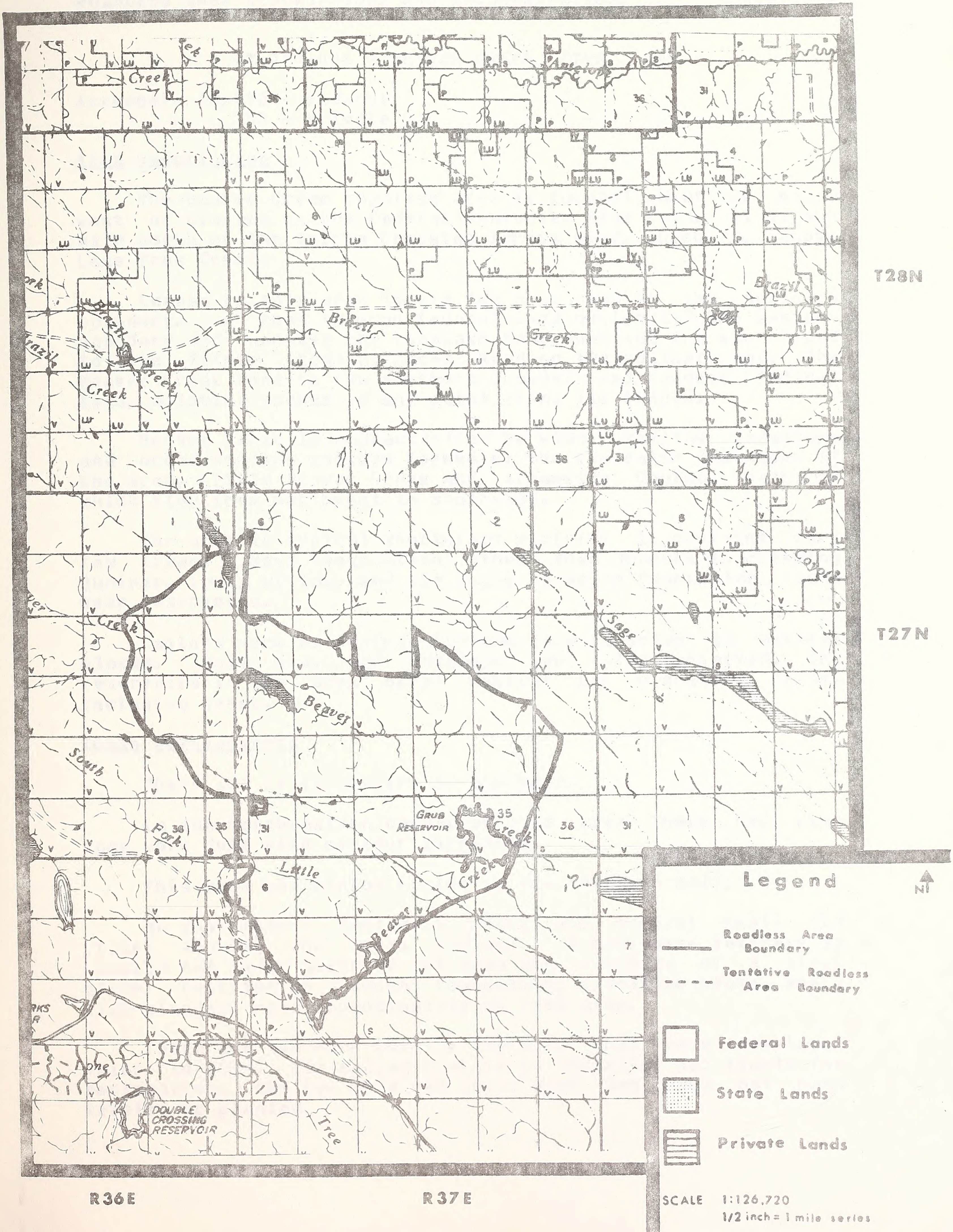
The area contains few impacts, but most are visible throughout the area because of its topography. This also decreases the potential for solitude and primitive recreation found within the area.

In addition, this area's exposure towards a county road, and because its eastern and southern boundaries are determined by significantly-used seasonal roads, there is a heavy off-site impact on the opportunities for solitude.

Recommendations

We do not recommend this area for wilderness study because its flat topography and small size make on-site and off-site impacts readily apparent to visitors and degrade its wilderness attributes.

MT-060-031 BEAVER CREEK


T28N
T27N
R36E
R37E
Antelope
Creek
Brazil
Brazil Creek
Creek
Sage
Coyote
Beaver
South
Fork
Little
Beaver
Creek
GRUB RESERVOIR
DOUBLE CROSSING RESERVOIR
Lone
Tree
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-031 - BEAVER CREEK (TRA 34)

Acreage: 18,056 - Federal
50 - Private

Area Description

The Beaver Creek roadless area is located about 30 miles west of Glasgow on the Federal Bentonite Mine Road. It is one mile north of the Triple Crossing Access Road, which is above Lone Tree Creek.

Access to this area is via the mine road on the northern boundary. A road through federal land designates the western boundary and connects the Tomahawk Spur Road and the mine road to the Triple Crossing Access Road on the southern end. The Beaver Creek Road is the southern boundary and borders federal land, allowing access at any point along its length.

Beaver Creek is characterized by wide, rolling ridgetops and broad shallow valleys formed by the two major drainages in the area, Little Beaver Creek and Arrambide Coulee, both of which flow from northwest to southeast.

The area is typical shortgrass prairie; it contains very few trees. Most vegetation other than grasses is creeping juniper, rose, willow, and the usual riparian vegetation found near reservoirs.

Raptors such as Swainson's hawk were sighted in several places. Mule deer and antelope were also observed. The reservoirs in the area offer habitat for migratory birds, including geese.

Human Developments

There are 14 reservoirs in the area.

In the northeastern corner of this area there has been some work done with contour furrowing.

This area has mining claims in the northern half.

We saw Federal Bentonite posts and several small BLM stakes showing the areas claimed. A bentonite refinery is located two miles north of the area and consists of a steel girder building on a cement foundation, a trailer house, and a high-standard road approximately 30 feet wide.

There are two mine pits in the area that were developed prior to 1969. The mining company is therefore not liable for reclamation; the two pits are still open and have not been leveled or planted.

There are approximately 15 miles of fence within the area.

There are ten sections of vehicle trails, half of which have been built. Four of these sections show signs of use.

Wilderness Suitability

Neither the major impacts in this area (the old strip mines and vehicle trails) nor the off-site impact of the bentonite processing plant greatly affects the natural integrity of Beaver Creek. However, these impacts do present a high impact on the apparent naturalness of the area.

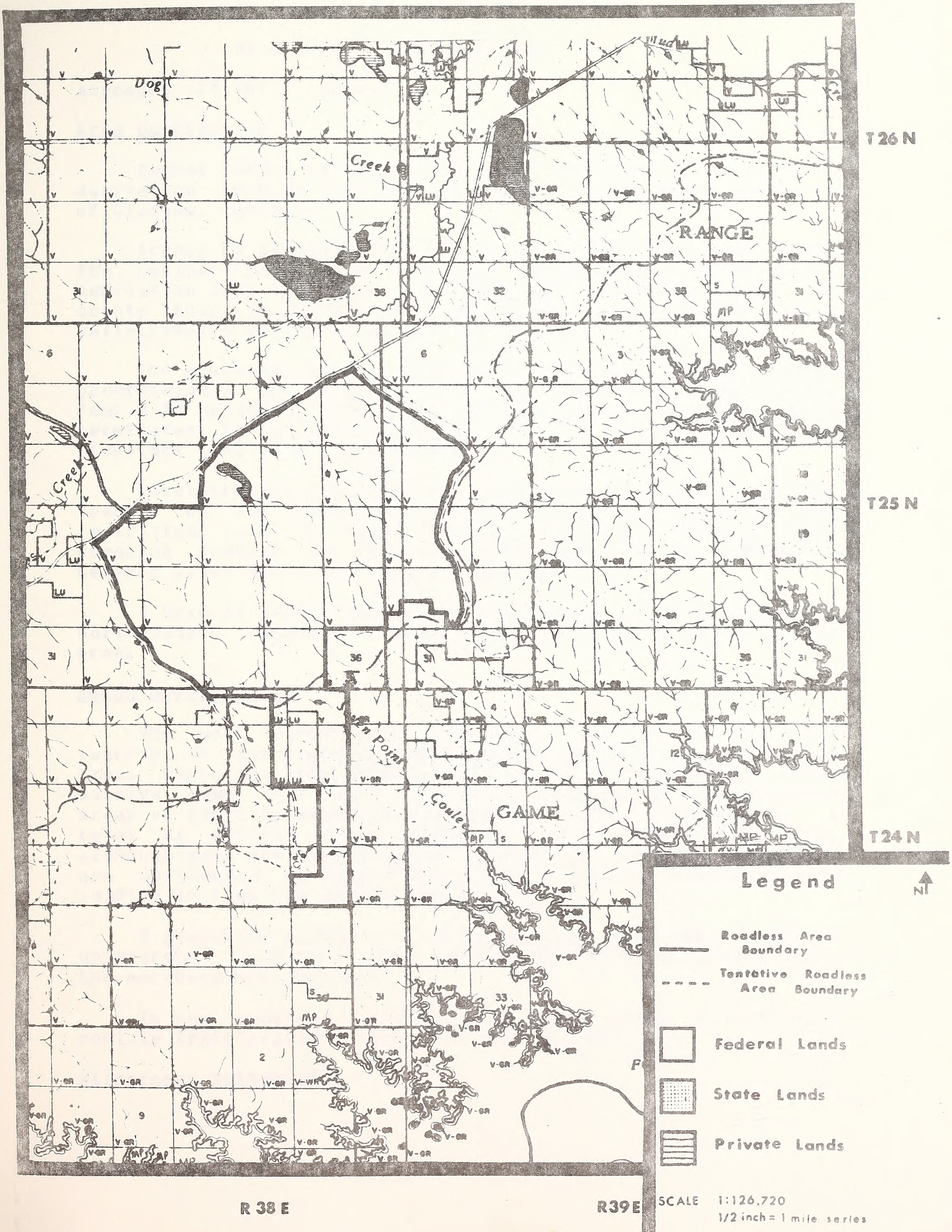
Although the area is large (approximately 18,000 acres), the unbroken topography and lack of screening vegetation, as well as off-site impacts caused by the bentonite processing plant and mining operations, provide only moderate opportunities for solitude.

The opportunities for primitive recreation are low due to lack of diversity of opportunities and challenging features in the area.

Recommendations

We do not recommend Beaver Creek for further study. The presence of the bentonite refinery just north of the area, and of the two old strip mines within the area, heavily impacts the wilderness qualities of Beaver Creek. Additionally, there is evidence of contour furrowing, vegetative manipulation, and mineral exploration throughout the area.

MT-060-032 BOMBER COULEE


Dog
Creek
Creek
RANGE
GAME
Point
Coulee
T26 N
T25 N
T24 N
R 38 E
R39 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-032 - BOMBER COULEE (TRA 35)

Acreage: 14,767 - Federal

Area Description

Bomber Coulee is located 12 miles northwest of the Pines Recreation Area on Fort Peck Reservoir, and 20 miles southwest of Glasgow, Montana.

Access is possible from the Willow Creek Road which forms the northern boundary of the area; from the road to the Pines Recreation Area that forms the eastern boundary; from the county road on the west side of Willow Creek Road; or from a well-traveled vehicle trail in the south.

The southern boundary follows a rolling ridgeline which progressively levels out at the lower elevations to the north. Four main drainages issue from the ridgeline, each of which terminates in a water detention reservoir (flood control and livestock use) or a stock reservoir.

Vegetation is grassland and sage with alkaline resistant species on the exposed bentonitic slopes. There is one restricted zone of Rocky Mountain juniper together with creeping juniper on the northeast face of the ridgeline, between 2,400 and 2,450 feet in elevation.

A herd of twelve antelope was observed just outside the northeastern boundary. Hawks were observed regularly in the area.

Human Developments

The most significant intrusion consists of vehicular traffic on the boundary roads that go to the Pines Recreation Area. There are also three water detention reservoirs whose massive dams, far-flung diversion earthworks, and extensive areas of riparian vegetation constitute major disturbances. A total of fifteen stock reservoirs can be found in the area, although many are washed out or silted in. These reservoirs are surrounded by fences and are the focus for vehicle trails leading in from the area's boundaries.

A powerline passes 1.25 miles through the area, and an underground telephone line with relay boxes is located along the northwestern boundary.

In the southern peninsula of this area, a well-used vehicle trail provides access to private land.

Wilderness Suitability

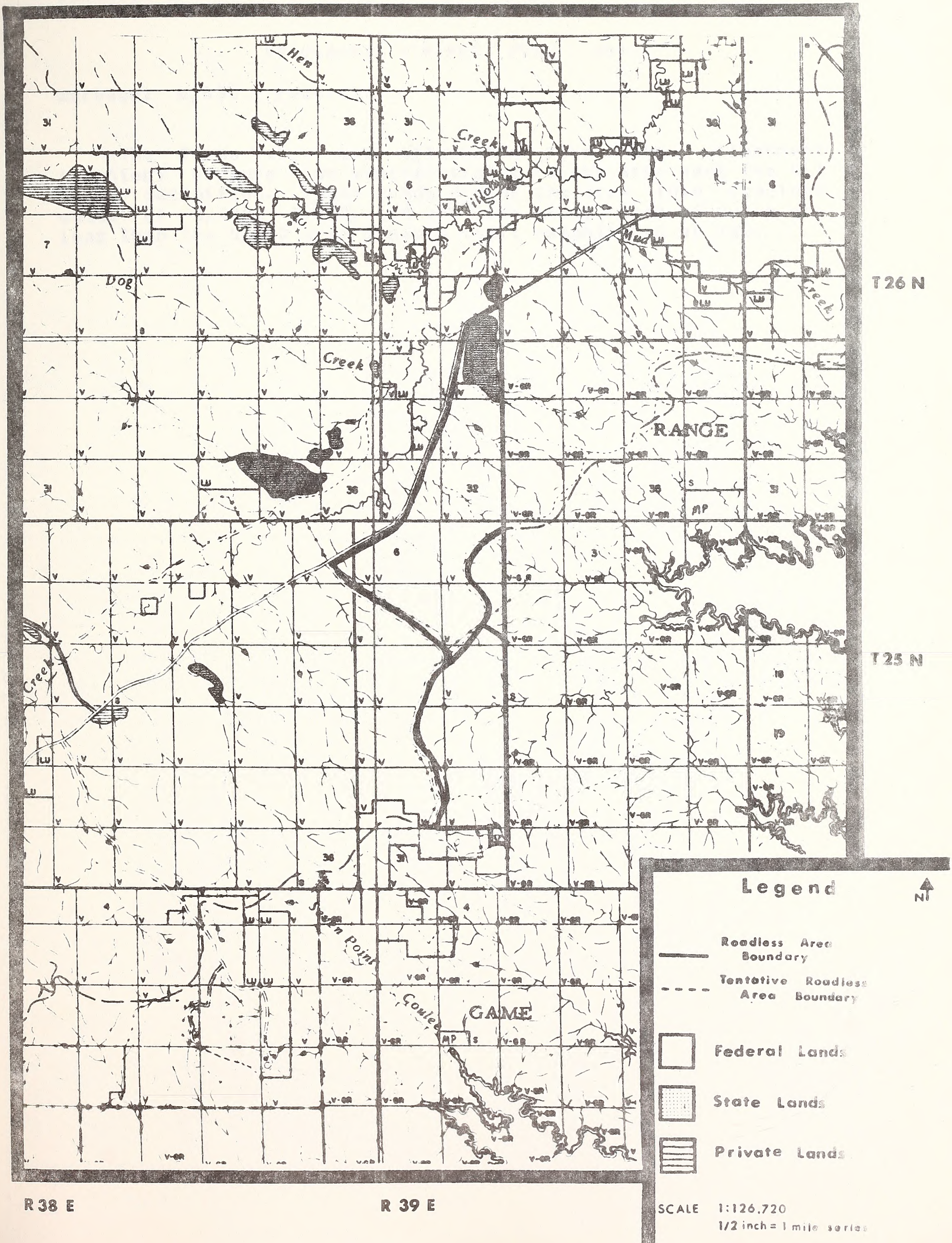
The terrain of this area makes impacts along the northern and eastern boundaries visible from within the area. Also, the area is bounded by three sections of high-standard county road that receive considerable traffic to Highway 24 and the Pines Recreation Area. Traffic on these roads is visible from the area. This off-site impact degrades the opportunity to find solitude within the area.

Because of the flat and gently rolling topography of the area, the opportunities for primitive recreation are low.

Recommendations

We do not recommend this area for further study because its topography makes on and off-site impacts highly apparent.

MT-060-033 PINES

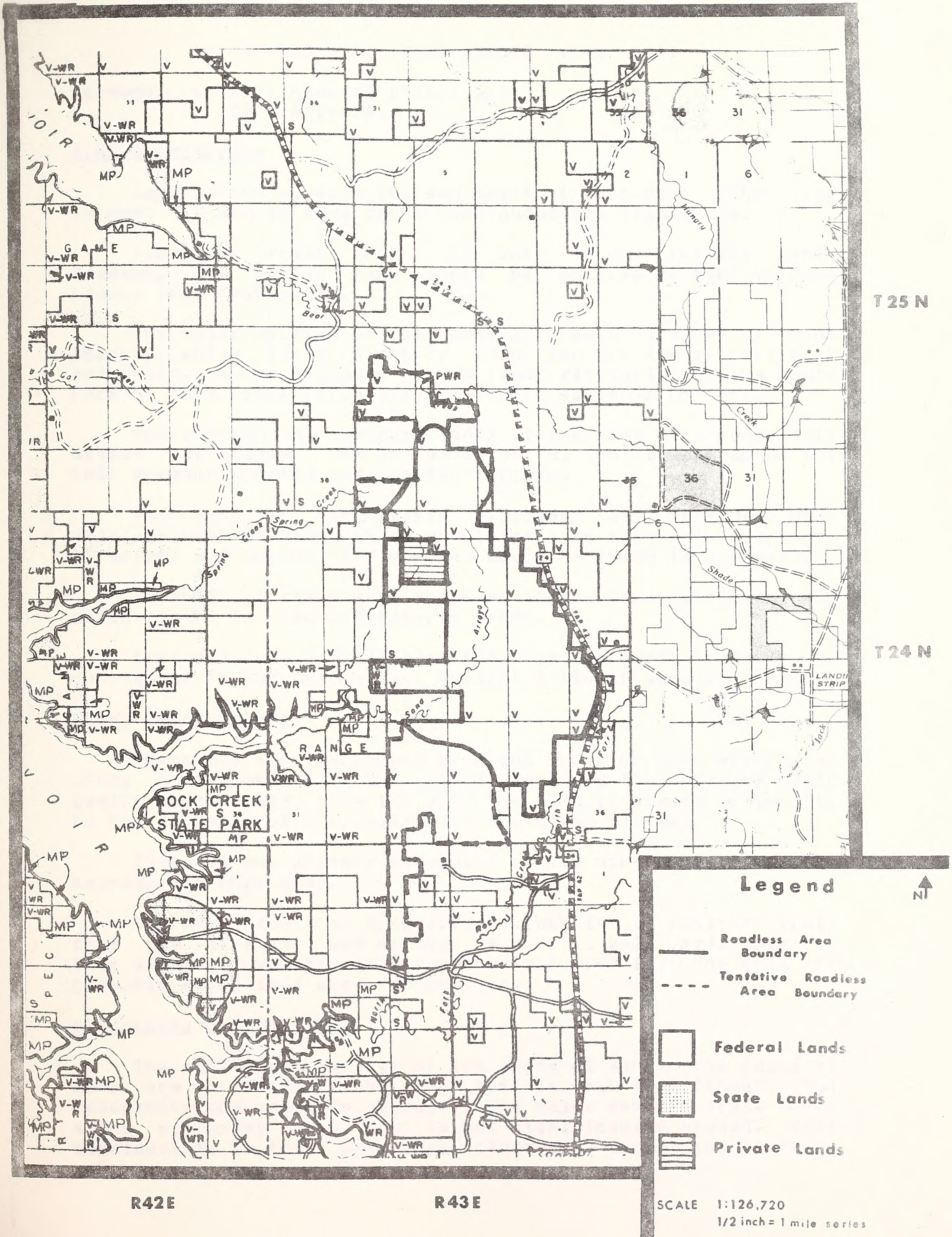

Hen
Creek
Willow
Mud
Dog
Creek
Creek
Creek
RANGE
GAME
Seven Point
Coulee
T26 N
T25 N
R 38 E
R 39 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-060-033 - PINES (TRA 36)

Acreage: 6,655 - Federal

The Pines Area was eliminated from the wilderness inventory because two vehicle trails in the area meet the BLM "road" definition. These roads divide the area into roadless units of 4,249, 2,150, and 256 (see map); each of which are less than the 5,000 acre minimum limit established by law.

MT-020-034 SAND ARROYO


T25N
T24N
R42E
R43E
ROCK CREEK STATE PARK
RANGE
GAME
Sand Arroyo
Spring Creek
Hungry Creek
Shade Creek
Bear Creek
Rock Creek
PWR
LANDING STRIP
V-WR
MP
V
S
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-020-034 - SAND ARROYO (TRA 43)

Acreage: 6,989 - Federal (TRA-10,614)
400 - Private

Area Description

Sand Arroyo is 15 miles southeast of Fort Peck. The area is east of, and in some cases contiguous to, Highway 24.

Vehicular trail access is only across private land. However, the public land could be entered by foot in some places from Highway 24.

The major portion of the roadless area is drained by Sand Arroyo, which flows directly into the Dry Arm of Fort Peck Reservoir. Minor drainage occurs from tributaries of the South Fork of Rock Creek which flow generally south of the area.

The western and southern sides of the area have moderately broken topography. As one moves north, the country opens out into broader bottoms and gentler terrain.

The area is exclusively grassland and provides good antelope habitat although no ungulates were observed. Raptors, riparian, and upland bird species could be found in the area.

No cultural sites were observed in the area, although one could expect to find prehistoric sites.

Approximately 0.5 miles of the Sand Arroyo boundary is contiguous to the Charles M. Russell National Wildlife Refuge.

Human Developments

There are six reservoirs of eight acres or less within or along the boundary. Two of these along the boundary could easily be separated from the area The land is grazed primarily in the vicinity of the reservoirs and creek bottoms.

There is one private inholding of 320 acres next to the boundary of this area.

The main access to Sand Arroyo Creek is a vehicle trail from the northeast and Highway 24. It is well used. Several less well-used vehicle trails branch off from it. The area is probably moderately used for hunting.

Wilderness Suitability

The ecological impacts of the works of man in the roadless area are a little less than average, but significant. The reservoirs are small to average. The major vehicle trail shows signs of heavy use, but is not significantly eroded. Most developments in this area are clustered along the western

boundary.

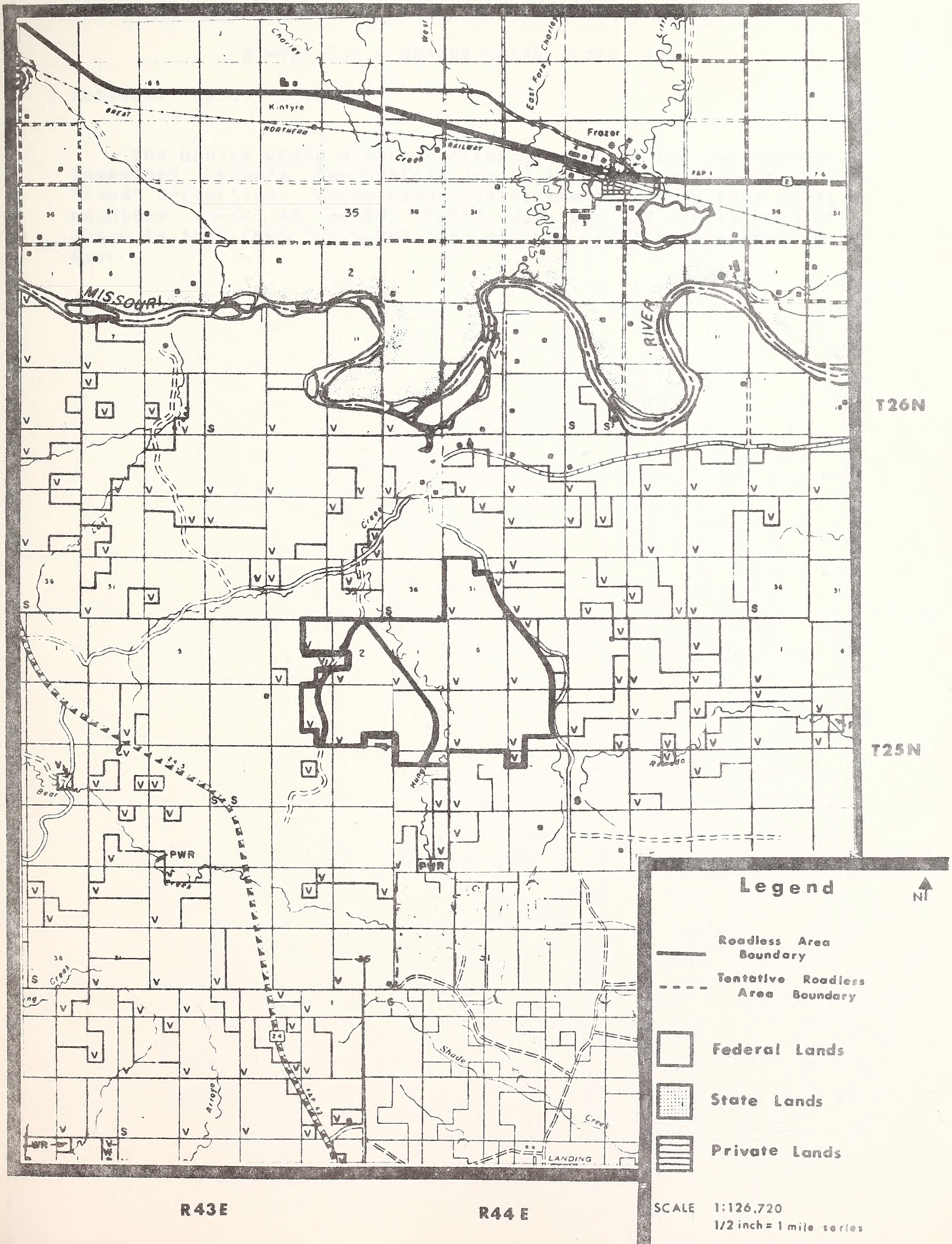
Despite its small size, the roadless area is fairly well insulated from off-site impacts.

Recommendations

We do not recommend this area for further wilderness study. This is due primarily to the low suitability for solitude and primitive forms of recreation.

Three boundary changes in the northern portion of this area (removing approximately 1,000 acres) and one in the southern portion (removing approximately 2,225 acres) are necessary due to vehicle trails judged to meet the BLM "road" definition (see map).

MT-020-035 HUNGRY CREEK

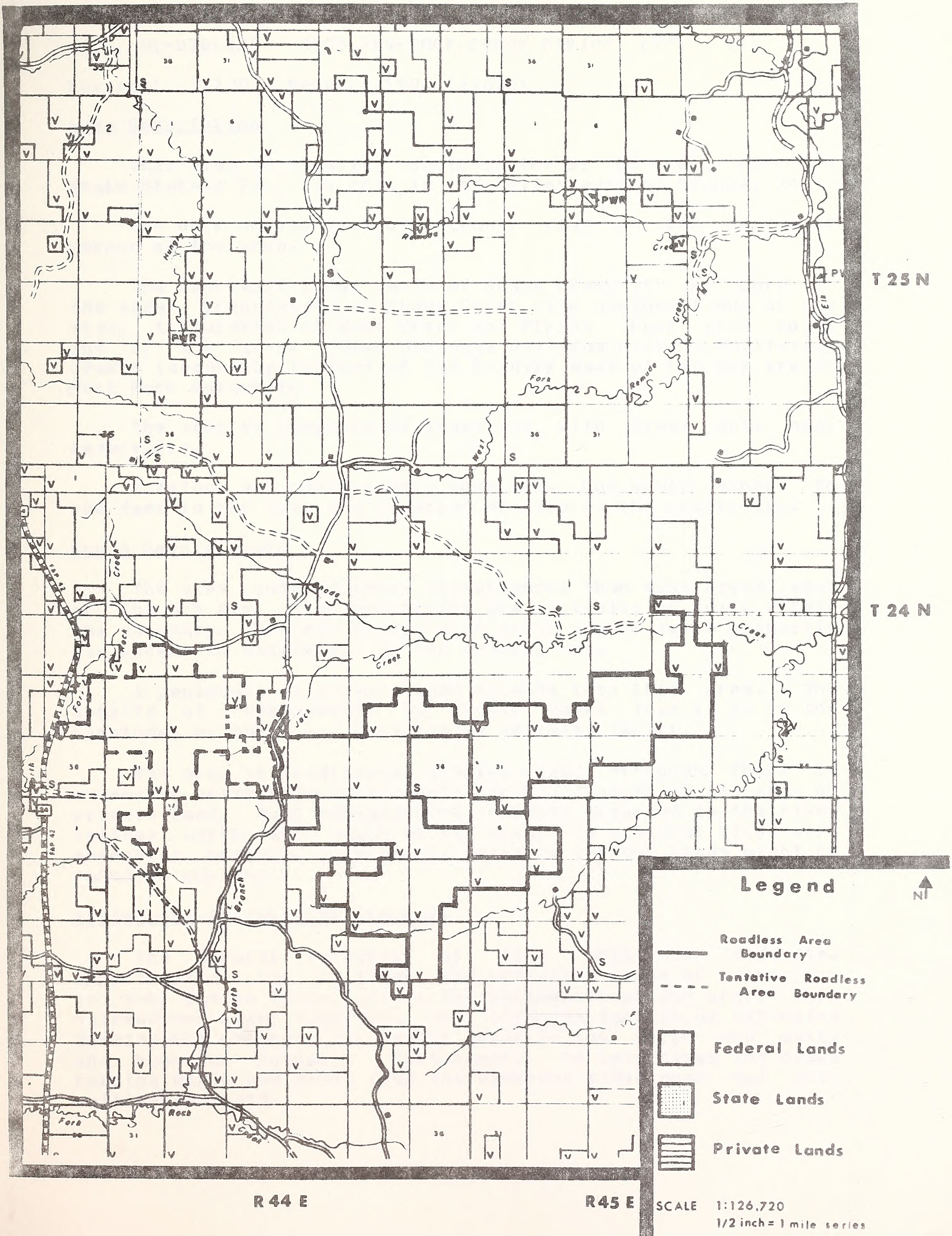

Kintyre
Great Northern Railway
Frazer
East Fork Charley
West
Charley
Creek
Missouri River
Lost Creek
Hungry
Bear
PWR
Shade Creek
Arroyo
Landing
T26N
T25N
R43E
R44E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-035 - HUNGRY CREEK (TRA 44)

Acreage: 5,939 - Federal

The Hungry Creek area was eliminated from the wilderness inventory because two vehicle trails in the area meet the BLM "road" definition. These roads divide the area into four small roadless units of 3,789, 1,587, 330, and 230 acres, each of which is less than the 5,000 acre minimum limit established by law.

MT-020-036 SAGE HEN—ROCK CREEK DIVIDE


T 25 N
T 24 N
R 44 E
R 45 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
Hungry
Remuda
Creek
PWR
West
Fork
Remuda
Creek
Elk
Creek
Rock
Creek
Jack
Creek
Fork
North
Branch
North
Fork
Rock
Creek
FAP 42

MT-020-036 - SAGE HEN-ROCK CREEK DIVIDE (TRA 45)

Acreage: 9,720 - Federal (TRA 12,870)

Area Description

This area is 25 miles south-southeast of Fort Peck on State Highway 24. Its core is five miles east of Highway 24.

The only access is from a county road on the northeast corner of the area.

The east-west ridge south of Shade Creek is the core of the area. Tributaries of Shade Creek flow northeast out of the area; tributaries of Rock Creek and Flying Creek flow south out of the area. These drainage patterns provide moderately broken topography typical of the country east of the Dry Arm of Fort Peck Reservoir.

The area is composed of grassland with trees only near reservoirs.

Antelope and raptors were observed. One would expect to see deer in the area and riparian species on the reservoirs.

Human Developments

The area contains fewer disturbances than most areas east of the Dry Arm. Nine reservoirs are partially or fully within the boundary. Vehicle trails that exist appear to be primarily for access to reservoirs or for grazing use.

A peninsula of private land extends into this area. The density of developments is higher there than it is in the remainder of the area, creating an off-site impact.

The area is traditional grazing land although there is extensive grain cultivation both north and south of the area on private land. Most homesteading probably occurred in the river bottoms north and south of the area. No cultural sites were observed; however, prehistoric sites of various kinds might be found in the area.

Wilderness Suitability Analysis

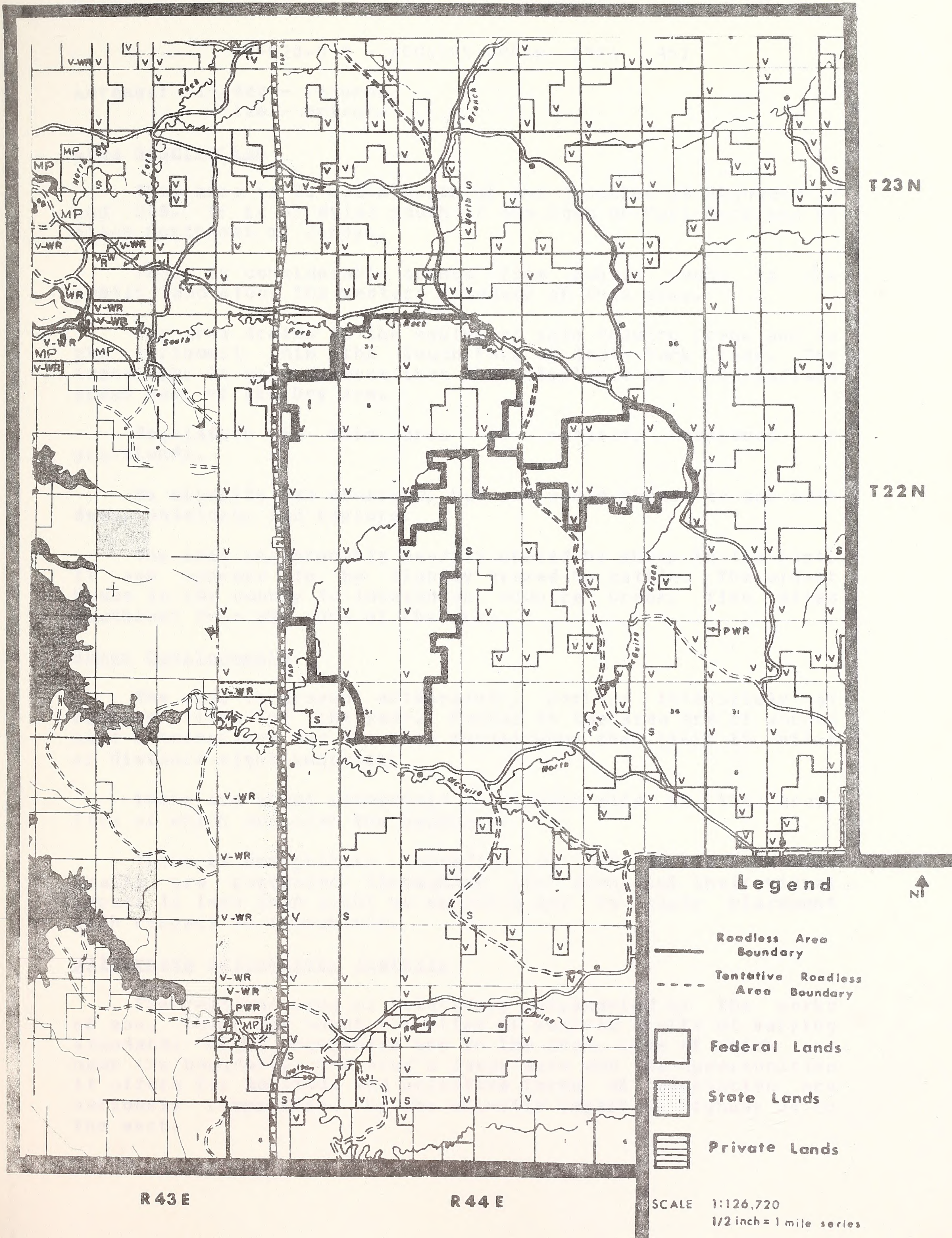
The natural integrity of this area is moderate. Opportunities for solitude and primitive forms of recreation are low, due in large part to the narrowness of the area. This narrowness also compounds the off-site impacts of extensive development (Highway 24, county roads to the north and east, and numerous houses). Furthermore, in many cases the draws running north and south from the backbone ridge open out into cultivated fields.

Recommendations

We do not recommend this area for further wilderness study because of a lack of wilderness characteristics, coupled with significant off-site impacts.

A boundary change was necessary in this area due to the presence of a road meeting the BLM definition. This road eliminates approximately 3,150 acres from the roadless area.

MT-020-037 McGUIRE CREEK


T23N
T22N
R43E
R44E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
V
S
MP
V-WR
PWR
Rock
South
Fork
North
Branch
McGuire
Creek
Coulee
Nelson
FAP 42

MT-020-037 - MCGUIRE CREEK (TRA 46)

Acreage: 13,440 - Federal
320 - Private

Area Description

This area is 25 miles north of the junction of Highways 24 and 200. It is 30 miles south of the town of Fort Peck and 45 miles northeast of Jordan.

There is considerable access from public roads to the public land along the western boundary of this area.

The area drains to the southwest into McQuire Creek and to the northwest into the South Fork of South Rock Creek. The topography is more diverse than that displayed by most roadless areas east of Big Dry Arm.

Vegetation in this area is entirely composed of grasslands.

No wildlife was observed, but one would expect to see mule deer, antelope, and raptors.

The area was probably heavily grazed by sheep in the past. It now appears to be lightly grazed by cattle. The oldest house in the county is located on McQuire Creek, five miles southeast from the core of the area.

Human Developments

The area is grazed extensively, perhaps intensively at certain times of the year. Fences in the area are of wooden post construction and are less conspicuous than their 15 miles of distance might indicate.

There are eight reservoirs of average size in the area, five of which are near the boundary.

There is one private inholding of 320 acres. Vehicle trails are pervasive throughout the area, but their visual impact is less than might be expected due to their placement with respect to topography.

Wilderness Suitability Analysis

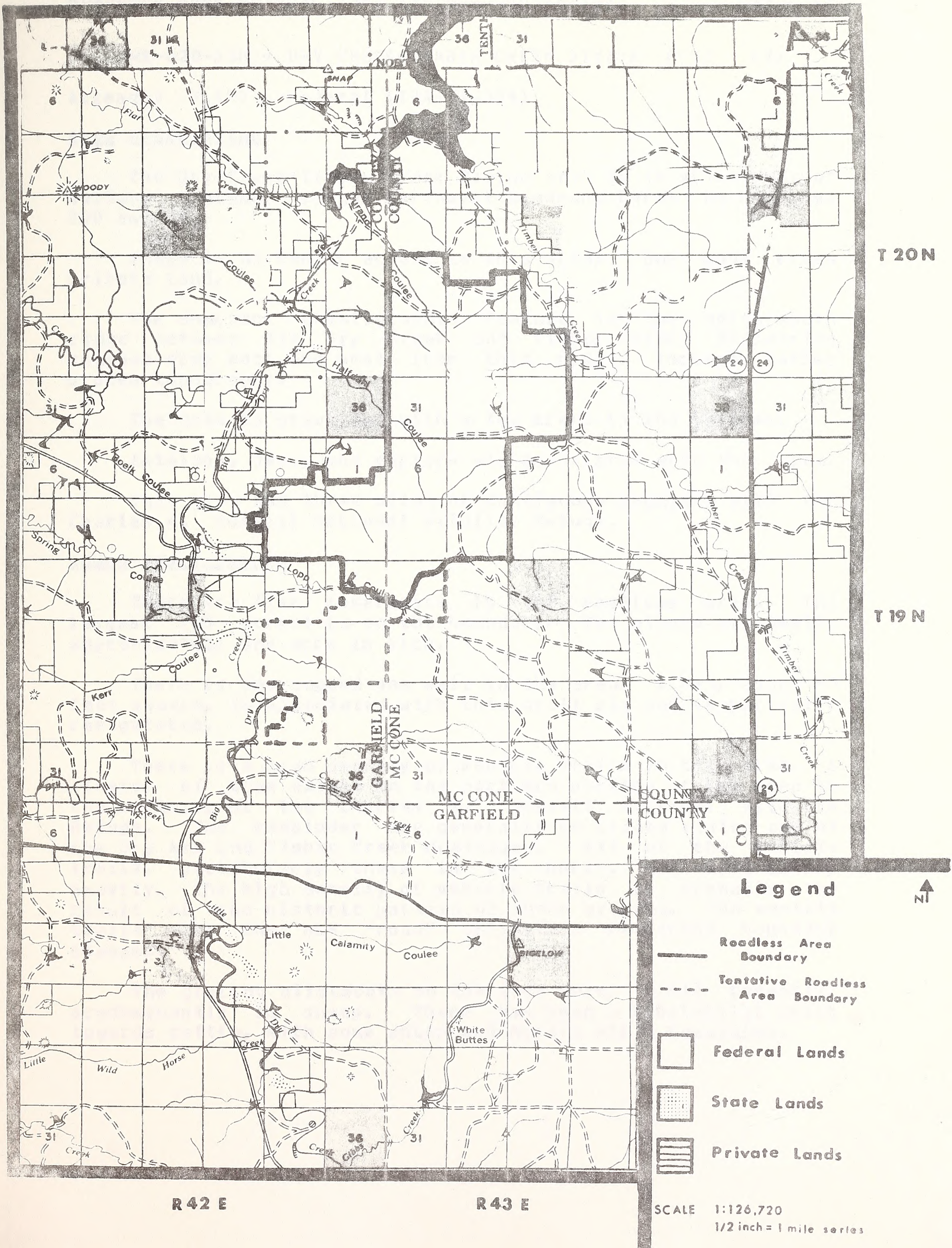
The roadless area is relatively untrammeled by the works of man. There are about six miles of vehicle trails of varying standard. Eight reservoirs are in the area, five of which are near the boundary. The area's large size and the opportunities it offers for solitude and primitive forms of recreation are seriously compromised by the off-site impact of Highway 24 to the west.

Recommendations

Because of the significant impacts of Highway 24 and the relatively low wilderness suitability, we do not recommend this area for wilderness study.

A boundary change is necessary in T22N R44E, Section 31 due to the presence of a vehicle trail which meets the BLM "road" definition. This change eliminates approximately 40 acres from the area.

MT-020-038 DRY CREEK—TIMBER CREEK DIVIDE



T 20N
T 19 N
R42 E
R43 E
GARFIELD
MC CONE
MC CONE COUNTY
GARFIELD COUNTY
WOODY
SNAP
BIGELOW
White Buttes
Big Dry Creek
Timber Creek
Little Dry Creek
Little Calamity Coulee
Boelk Coulee
Spring Coulee
Lopp Coulee
Halfway Coulee
Kerr Coulee
Mud Coulee
Durand Creek
Flat Creek
Gibbs Creek
Little Wild Horse Creek
24
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-038 - DRY CREEK-TIMBER CREEK DIVIDE (TRA 67)

Acreage: 9,450 - Federal (TRA-11,894)

Area Description

The Dry-Creek-Timber Creek Divide area is 30 miles east of Jordan, Montana, in the northwest quadrant formed by Highways 200 and 24.

There is no public access to this area; one must cross private land.

The dominant physiographic feature is the north-south ridge between Big Dry Creek and Timber Creek. Meandering coulees drop east and west from this ridge, through rather broken topography.

The area is grassland with a few trees in the bottoms.

Antelope, deer, and raptors are associated with the area.

This area has three miles of contiguous boundary with the Charles M. Russell National Wildlife Refuge.

Human Developments

There are five reservoirs in the roadless area. The largest (20 acres) is on the boundary. The others are small, approximately one acre in size.

There is one capped gas well in the area. A pad, about 40 feet square, is associated with this drill rig and is partially revegetated.

There is a high density of vehicle trails in this area. A cluster of them exists in the northern portion of the area in the vicinity of the Charles M. Russell National Wildlife Refuge. The remainder are generally on ridges rising out of the Dry Arm and Timber Creek drainages. All of the vehicle trails, particularly those in the north, are used fairly heavily. The high density of vehicle trails is probably the result of the historic pattern of sheep grazing. Two vehicle trails meet the BLM "road" definition requiring boundary changes.

The grazing allotments on the area were, until recently, predominantly in sheep. There has been a substantial shift towards cattle, with some sheep and horses still remaining.

Wilderness Suitability

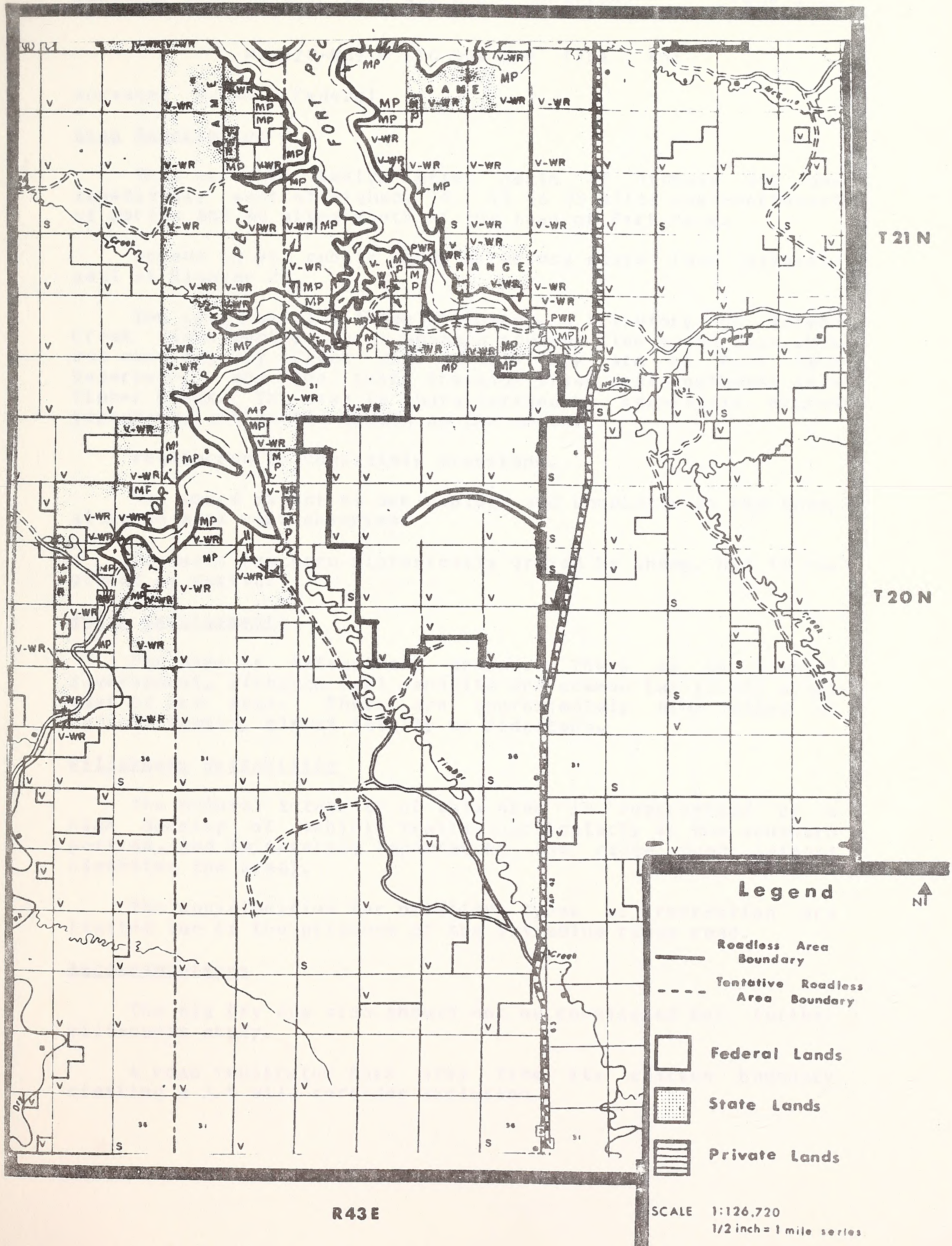
The natural integrity and apparent naturalness of this area are moderate. The opportunity for primitive forms of recreation is low due to little diversity. The opportunities for solitude are moderate. In some of the side coulees which meander through the area a sense of solitude is pervasive. When one climbs to a ridge, however, impacts are apparent and this sense of solitude is compromised.

Recommendations

We do not recommend Dry Creek-Timber Creek Divide for further wilderness study because of the low suitability with respect to opportunities for solitude and primitive recreation.

A boundary adjustment is necessary in this area because of two roads. These roads eliminate from the wilderness inventory approximately 2,500 acres in the southern portion of the area.

MT-020-039 BIG DRY ARM


FORT PECK GAME RANGE
T21N
T20N
R43E
V-WR
MP
PWR
V
S
Creek
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-020-039 - BIG DRY ARM (TRA 68)

Acreage: 9,748 - Federal

Area Description

This area is twelve miles north of Highway 200 and immediately west of Highway 24. It is 35 miles east-northeast of Jordan and 40 miles south of the town of Fort Peck.

Access is via public land, or across state land directly west of Highway 24.

The area contains three drainages, a tributary of Nelson Creek flows north; three unnamed coulees flow north into what was once Big Dry Creek and is now Dry Arm of Fort Peck Reservoir; and the third drainage flows west-southwest into Timber Creek. The area is characterized by moderately broken topography and gentle breaks on the north.

Vegetation is completely grassland.

One would expect to see raptors and ungulates in the area, although none were observed.

The area has been historically grazed by sheep, but is now grazed by cattle.

Human Developments

The area is extensively grazed. There is no mineral development, although coal deposits are common (as in all areas east of Dry Arm). There are approximately nine miles of vehicle trails, almost totally on ridgetops.

Wilderness Suitability

The natural integrity of this area is compromised by a high density of vehicle trails, particularly in the southern portion, and is severely impacted by the ridge road (almost bisecting the area).

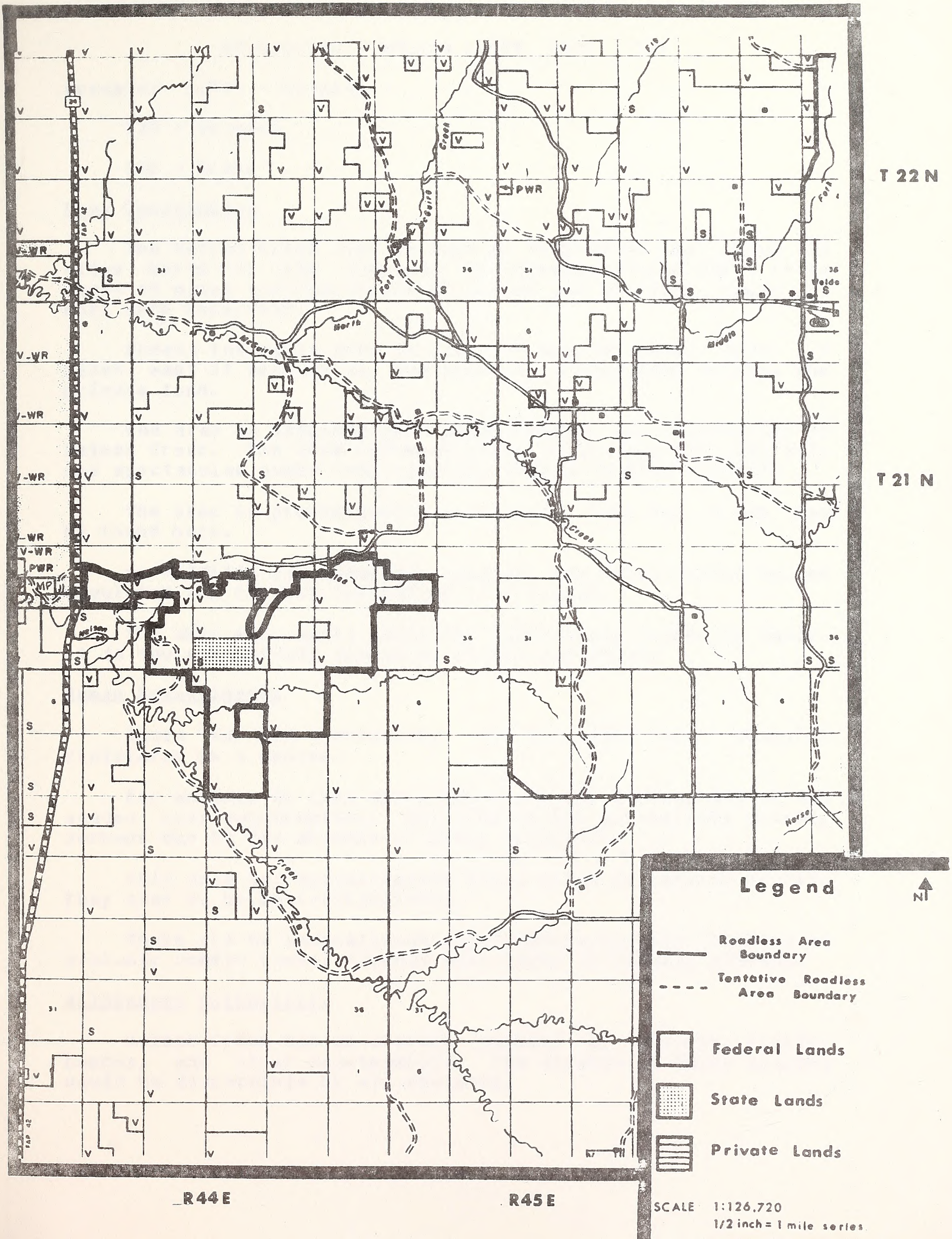
The opportunities for primitive types of recreation are limited due to the presence of the intruding ridge road.

Recommendations

The Big Dry Arm area should not be considered for further wilderness study.

A road penetrates this area from its eastern boundary creating a 2.5 mile corridor exclusion.

MT-020-040 NELSON CREEK


T 22 N
T 21 N
R44E
R45E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
PWR
MP
V-WR
Nelson Creek
McGuire Creek
North Fork
Middle Fork
Horse Creek
Weldon

MT-020-040 - NELSON CREEK (TRA 74)

Acreage: 5,199 - Federal

739 - Private

320 - State

Area Description

The Nelson Creek area is east of Highway 24 and about 15 miles north of the junction of Highways 24 and 200. It is about 40 miles east-northeast of Jordan and 40 miles south of Fort Peck Reservoir.

Access into this area is via "red scorio" road, then 3.5 miles east of Highway 24, and south on a road that crosses the private land.

The area is composed of a ridge between two tributaries of Nelson Creek. The area has moderately broken terrain with only one spectacular gumbo dome (usually common in this region).

The area is predominantly grassland. Very few trees can be found here.

No wildlife was observed, however, one could expect to see ungulates and raptors typical of this region.

The area was, until recently, intensively grazed by sheep. It is now extensively grazed by cattle and sheep.

Human Developments

There is one reservoir. It is small and somewhat cloistered in a coulee.

For an area of this size, there are few fences, all of old wooden post construction. The area is not intensively grazed, perhaps due to the absence of water reservoirs.

This area has approximately seven miles of vehicle trails. They seem to be well-established.

There are no recreational developments, however, hunting is probably common (shell casings were found in several places).

Wilderness Suitability

Nelson Creek has an average density of vehicle trails, fences, and other developments. The effects of heavy grazing would be discernible by all visitors.

The area provides less solitude than commensurate with an area of this size due to its proximity to Highway 24 and the "red scorio" road. The drainage patterns diminish opportunities for solitude by focusing the visitor's attention onto the highway and road.

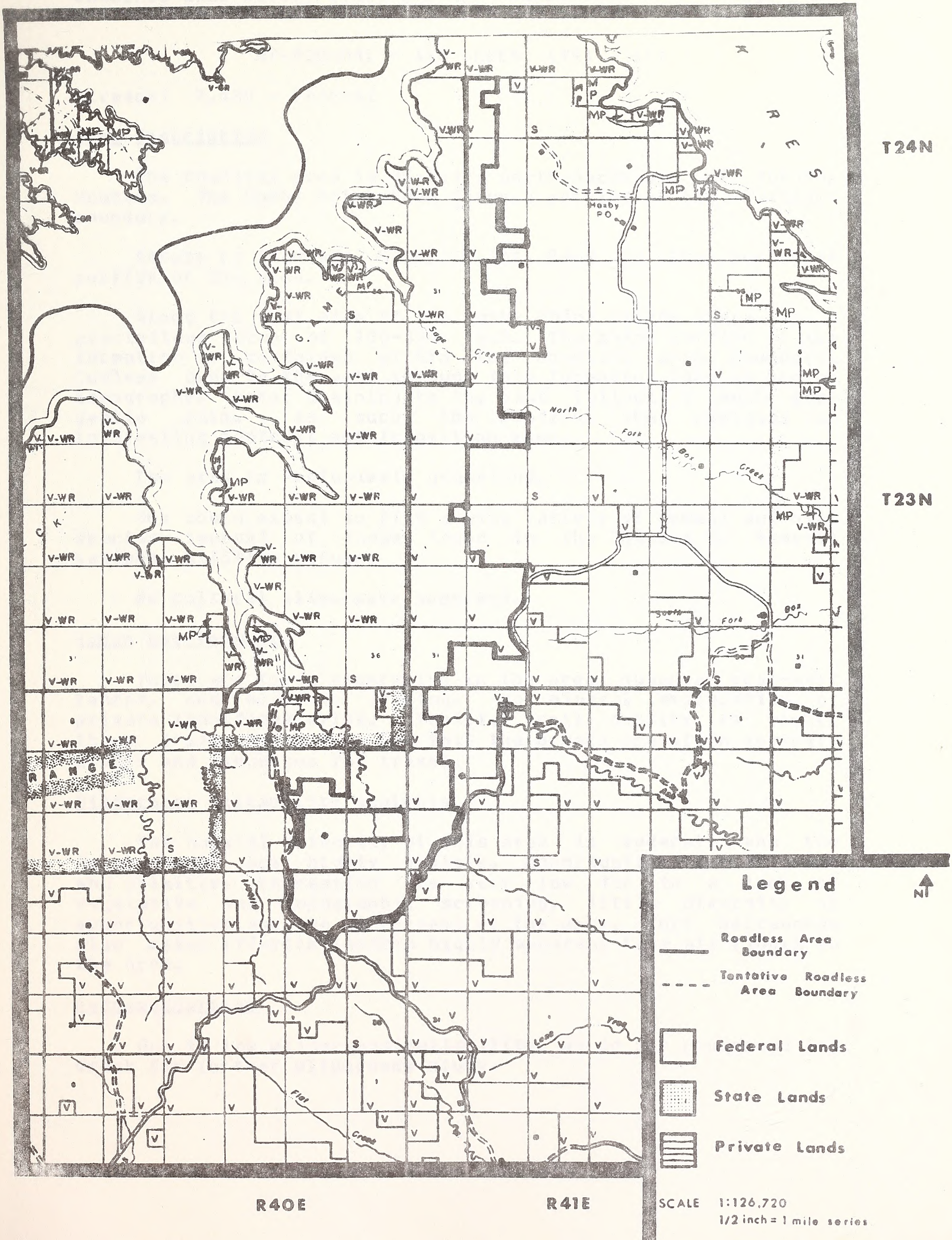
Recommendations

We do not recommend Nelson Creek for further wilderness study because of off-site impacts and a lack of significant wilderness attributes.

A boundary change is necessary in the northern portion of this area because of a vehicle trail which meets the BLM "road" definition. This would create a 0.5 mile off-site intrusion into the area.

There is a fine site for a developed roadside camp area in T21N, R44E, S30. It might be appropriate to manage portions of the area for walk-in hunting.

MT-020-041 ASH CREEK


T24N
T23N
R40E
R41E
Mosby PO
Sage Creek
North Fork Box Creek
South Fork Box
Flat Creek
RANGE
V-WR
MP
S
V
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-020-041 - ASH CREEK (TRA 41)

Acreage: 7,680 - Federal

Area Description

The roadless area is 35 miles north-northeast of Jordan, Montana. The Haxby Point Road forms a portion of the southeast boundary.

Access is from the Haxby Point Road in the southeast portion of the area.

Along the west side of the Haxby Point Divide there is a precipitous drop of 100-300 feet. The major portion of the formation is contained within the roadless area boundary. Coulees drop to the west through this formation forming broken topography. Water draining to the east follows a much more gentle path. As such, the roadless area contains an interesting contrast and transition zone.

The area is exclusively grassland.

One could expect to find a wide variety of mammal and bird species typical of those found in the Charles M. Russell National Wildlife Refuge.

No cultural sites were observed.

Human Developments

There are three reservoirs in the area, numerous east-west fences, and moderate grazing. No mineral exploration or private inholdings exist. Vehicle trail density is light; those trails which drop off into the breaks are often severely eroded and dangerous for travel.

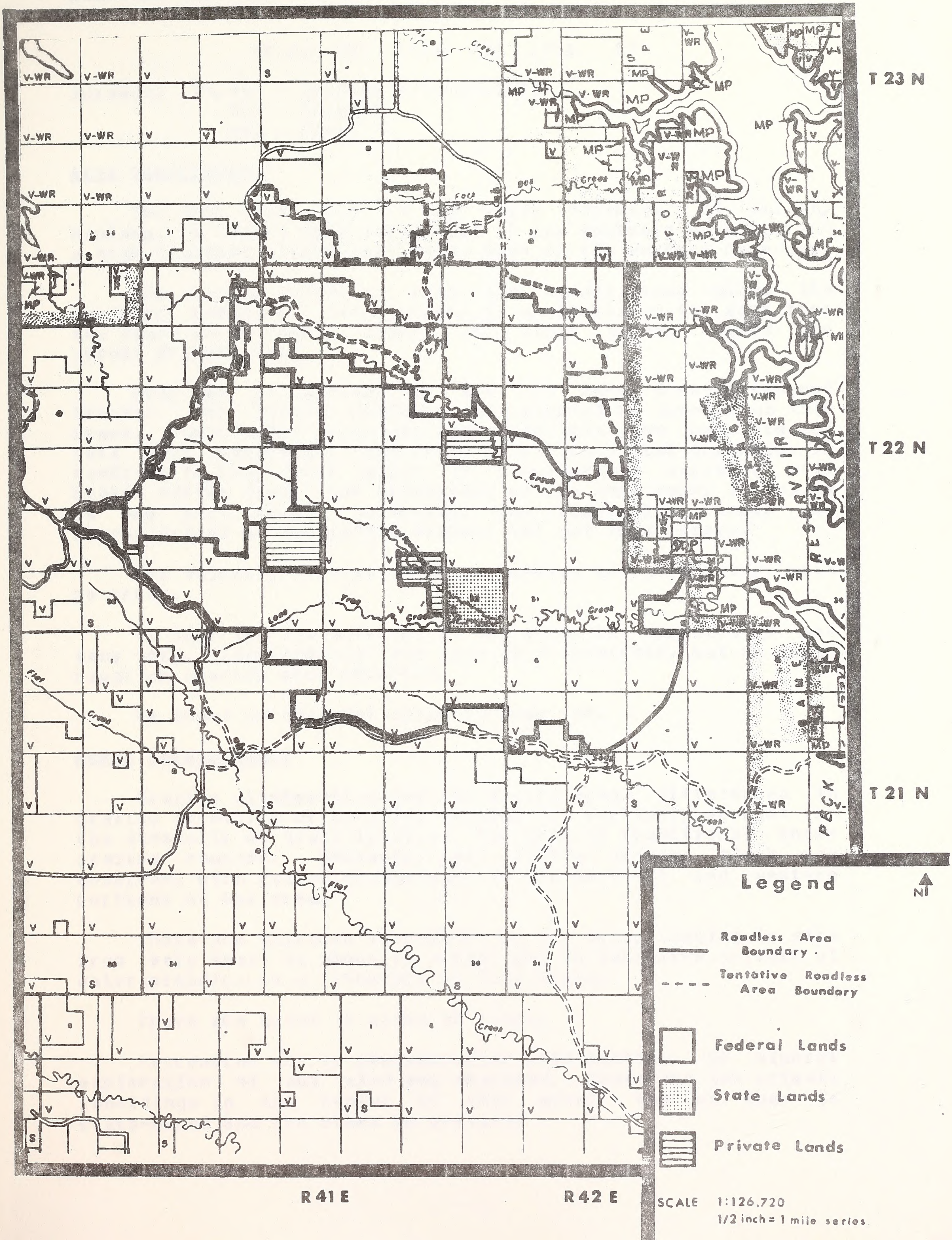
Wilderness Suitability Analysis

The natural integrity of this area is moderate and the developments are highly visible. Opportunities for solitude and primitive recreation are very low due to a lack of vegetative and topographic screening, little diversity of opportunities and the narrowness of the area. This narrowness also makes off-site impacts highly apparent from all ridges in the area.

Recommendations

Due to low wilderness suitability, we do not recommend Ash Creek for further wilderness study.

MT-020-042 SNAP ASH


T 23 N
T 22 N
T 21 N
R 41 E
R 42 E
FORT PECK RESERVOIR
GAME RANGE
V-WR
MP
Fork
Creek
Flat Creek
Lone Tree Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-042 - SNAP ASH (TRA 42)

Acreage: 19,042 - Federal (TRA-29,257)
554 - Private
640 - State

Area Description

The Snap Ash area is 30 miles northeast of Jordan, Montana. A county road forms part of its southern boundary and a high standard county road forms much of its western boundary.

The easiest access is from the county road along the southern boundary. Other access is available on the west from the Haxby Point County Road. All other access routes are across private land.

Snap Ash is drained by Ash and Lone Tree-Cottonwood Creeks. The latter drainage is referred to locally as Snap Creek. These major drainages flow east into the Dry Arm of Fort Peck Reservoir. Ash Creek is a large, flat drainage, in contrast to Snap Creek which is considerably narrower with broken bottom land. The brokenness of the topography increases as one goes east. Generally, the topography could be characterized as moderately broken, but not true breaks.

The majority of vegetation is grasses and sagebrush, with no trees.

We observed few antelope in the area, but expected to see many more. One cormorant was seen on a reservoir, but no other riparian species were observed.

We found no cultural sites in Snap Ash.

Human Developments

Grazing allotments cover the entire area. Differences in grazing intensity or rotation systems may partially account for the diversity of grass species. The area is traditional sheep grazing country. However, very little grazing stock was observed, with cattle predominant in the northern and western portions of the area.

There are thirteen reservoirs in the area, ranging in size from very small to about 15 acres, and an extensive network of waterspreaders in a tributary of Snap Creek.

There are about 25 miles of fence.

Recreation use is predominantly fall hunting. No mineral exploration of any kind was observed. There are two private inholdings in the center of this area; one of them is state-owned and the other is private.

Vehicle trails appear to be denser than average and evenly distributed throughout the area. Several of them were determined to meet the BLM "road" definition.

Wilderness Suitability Analysis

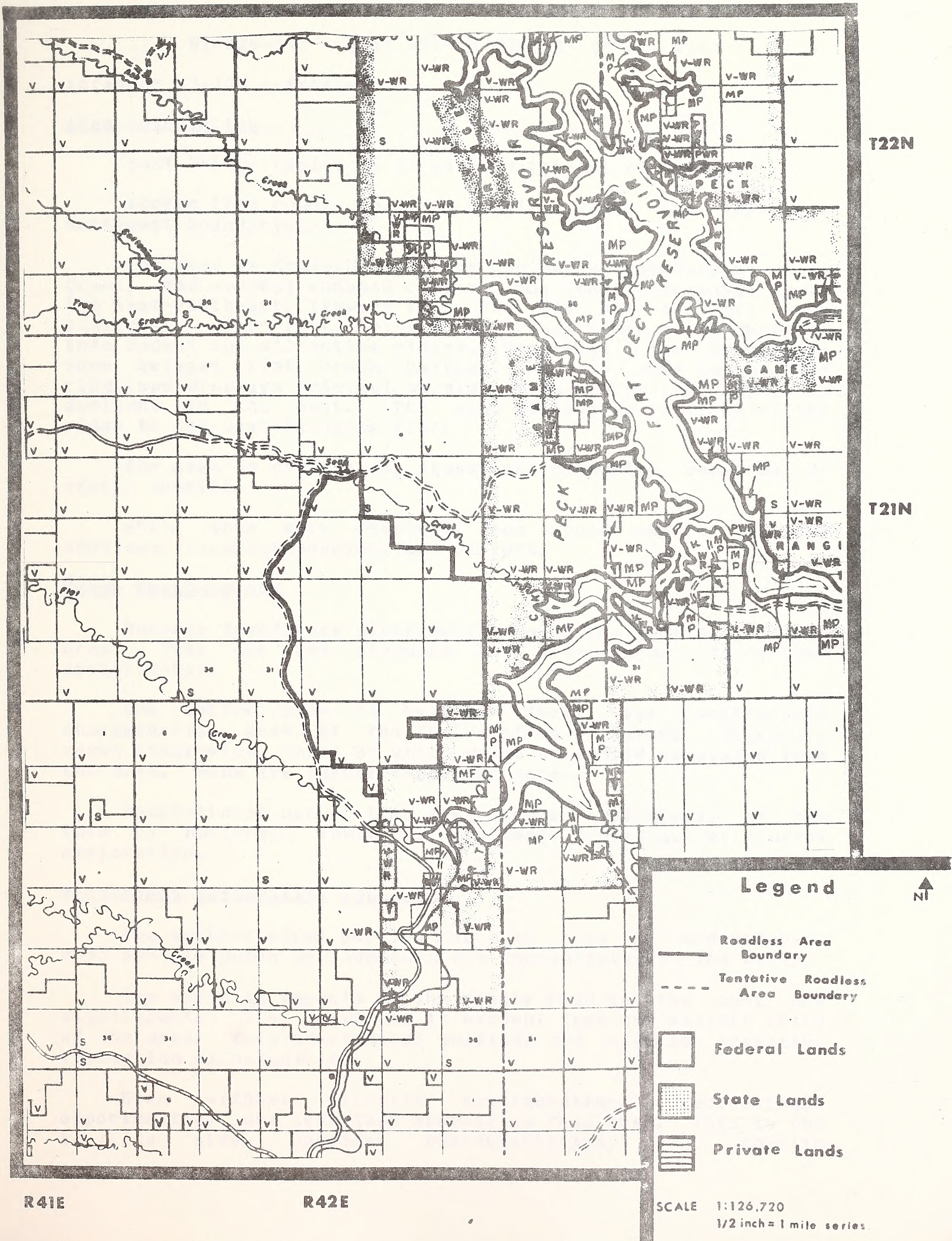
Snap Creek, in the heart of this area, has a low density of development as well as opportunities for primitive forms of recreation. The valley bottom is narrow with broken, spectacular formations to the north and south, providing some opportunities for solitude. The headwaters of Snap Creek lie outside of the boundary. Also, the core of the drainage has a 960-acre inholding. The intrusions created by the roads deadheading in from the north and south seriously compromise the natural integrity of the area, as well as opportunities for solitude and primitive forms of recreation.

Recommendations

Because of the road intrusions and the size and locations of private and state inholdings, we do not recommend wilderness study for the Snap Ash area.

Boundary changes, due to the presence of roads, exclude the northern and northwestern peninsulas of this area (see map).

MT-020-043 EAST BRIDGE COULEE


T22N
T21N
R41E
R42E
FORT PECK RESERVOIR
GAME RANGE
Creek
V
V-WR
MP
PWR
S
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-043 - EAST BRIDGE COULEE (TRA 65a)

Acreage: 7,308 - Federal

Area Description

East Bridge Coulee is 32 miles northeast of Jordan.

Access from county roads is possible along the west and northwest boundaries.

The area is drained by Bridge Coulee, a tributary of Snap Creek, and several unnamed creeks. The general drainage is to the east-southeast, flowing into Big Dry Arm of Fort Peck Reservoir. The flat bottoms of Bridge Creek break abruptly into modest but attractive ridges. Generally, the transition zone between flat creek bottoms and, in some cases, flat ridgetops displays colorful strata. This broken topography is dominant in the east. The area along some portions of the ridge to the west is quite flat.

The area is exclusively grassland, primarily composed of exotic species.

While none were observed, one would expect to find antelope, riparian species, and raptors.

Human Developments

Vehicle trails are distributed around the periphery of the area. They are low standard but some appear to be used occasionally.

The entire area is grazed. Steel post construction characterizes most of the twelve miles of fences. There are seven reservoirs, three of which could be easily separated from the area. None are larger than four acres.

Recreational use of this area comes exclusively in the form of hunting. There are no private inholdings or mineral exploration.

Wilderness Suitability Analysis

The south-central portion of the area is undeveloped. Most on-site human developments are concentrated in the north.

The off-site impacts of the county road to the west are significant. Its heavy use is evident from the western third of the area; this compromises solitude and reduces primitive recreation opportunities.

Even without off-site consideration, recreational opportunities are less than average in this area. This is due to its size, physical characteristics, and on-site

developments.

Another factor affecting the area's wilderness suitability, the significance of which is undetermined at this time, is the contiguity of this area with the CMR National Wildlife Refuge. There is five miles of common boundary.

Recommendations

Because of the significant on-site impacts in the north and off-site impacts to the west, along with low opportunities for solitude and primitive recreation, we do not recommend East Bridge Coulee for further wilderness study.

Although this area by itself is not suitable for wilderness study, we suggest further investigation of its contiguous nature with CMR lands.

development.

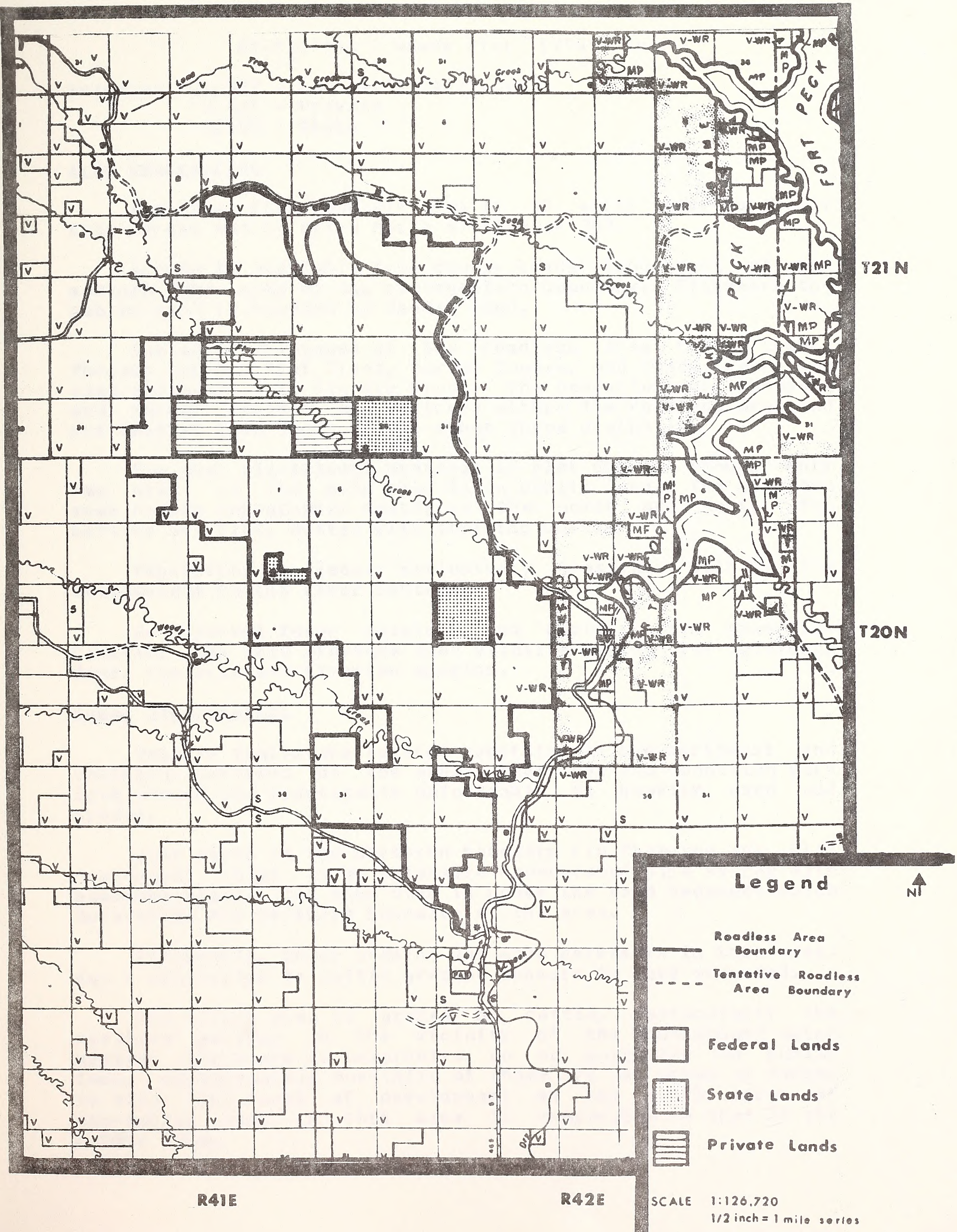
Another factor affecting the area's wilderness suitability, the significance of which is undetermined at this time, is the contiguity of this area with the CMR National Wildlife Refuge. There is five miles of common boundary.

Recommendations

Because of the insignificant wildlife habitat in the north and westerly aspects of the area, along with low opportunities for solitude and primitive recreation, we do not recommend the Bridge Coulee for further wilderness study.

Although this area in itself is not suitable for wilderness study, we recommend further investigation of its contiguous borders with CMR lands.

MT-020-044 WOODY FLAT


T21 N
T20N
R41E
R42E
FORT PECK
Woody
Creek
V-WR
MP
V
S
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-044 - Woody Flat (TRA 65)

Acreage: 21,702 - Federal (TRA-27,266)
2,621 - Private
1,658 - State

Area Description

The Woody Flat roadless area is 30 miles east-northeast from Jordan and 15 miles north of Highway 200.

Access is available from county roads along most of the eastern and some of the northwestern boundary. Elsewhere the public land is bounded by deeded land.

The major drainages of the roadless area (Snap Creek, Thomson Coulee, Flat Creek, Murray Coulee, and Woody Creek) run east-southeast into Big Dry Creek. The headwaters of Thompson and Murray Coulees are entirely within the roadless area and are smaller than those of the other three drainages.

The most significant drainage is Flat Creek, though only two miles of the main stem is on public land. The area has some broken topography, mostly in the north and east. The bottoms are flat, dotted with striking buttes.

Vegetation is almost exclusively grassland with a few cottonwoods in the river bottoms.

We observed fewer antelope and raptors than expected. However, the area provides good wildlife habitat for antelope, deer, raptors, and riparian species.

Human Developments

Vehicle trails are located generally in the northwest and southern portions of the area. Their use and condition vary from unused and practically unlocatable to heavily used and eroded.

Just south of the northern boundary (in Thompson and Flat drainages) there is an extensive underground pipe system with numerous heads. The main stem is under the road sequence which determines the northern boundary of the area.

Presumably, sheep grazing was once pervasive in this area, but a conversion to cattle grazing appears to have occurred.

The entire area is grazed by cattle, particularly the northern portion in the vicinity of the underground water system. There are 16 reservoirs on or partially on public land. Approximately one-third of these are ten acres or larger in size. The level of development on the 4,000 acres of non-public land in this area is comparable to that of the public land.

Powerlines are conspicuous in three locations: north and parallel to Woody Creek; along the western boundary; and along the northwestern boundary.

Wilderness Suitability Analysis

Human developments are unevenly distributed in this area, being concentrated in the north and south. The south central portion has a high degree of natural integrity with few impacts.

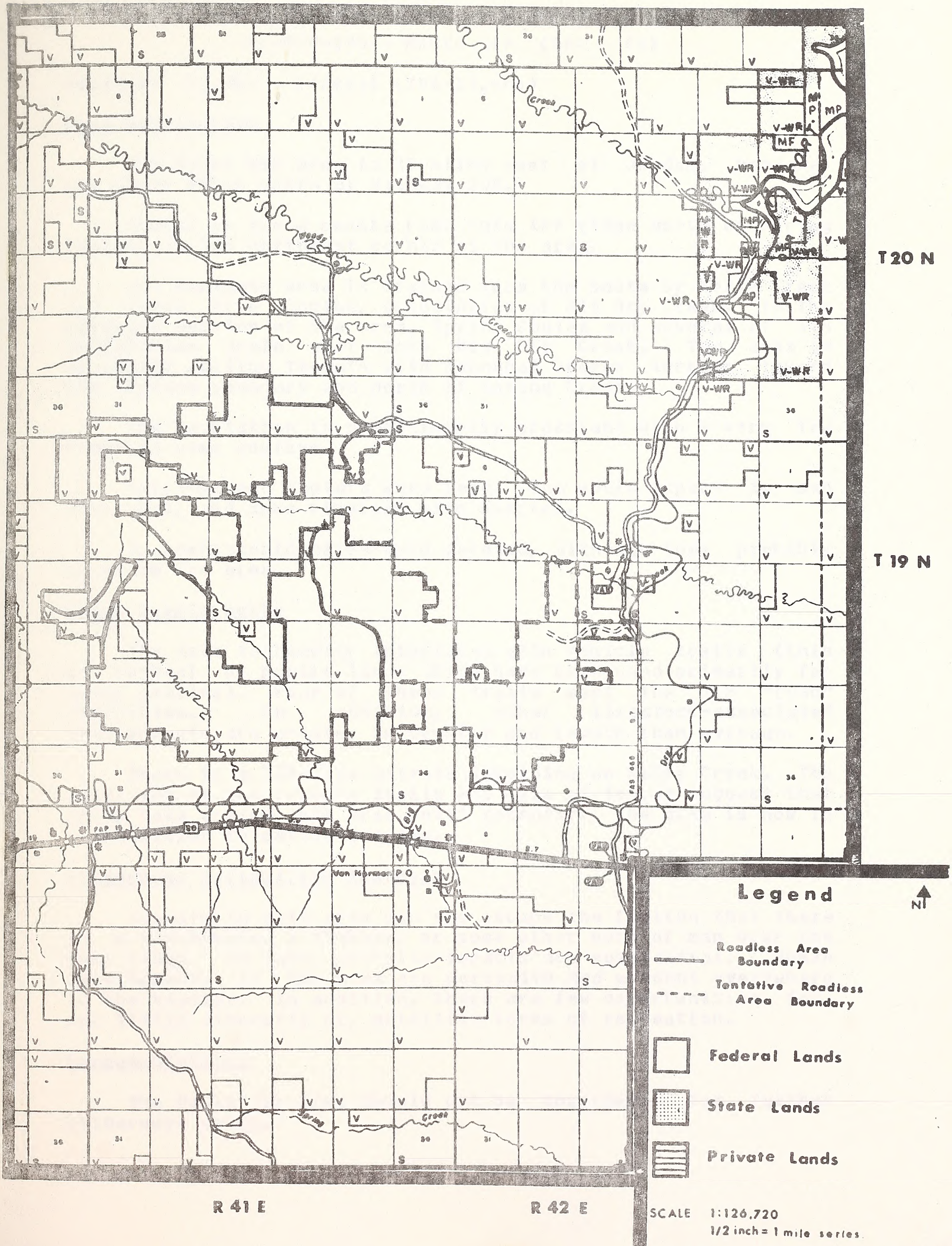
This area provides a feeling of spaciousness, and high opportunities for solitude except on some of the periphery. Opportunities for primitive recreation are moderate throughout the area.

Recommendations

We recommend this area for further wilderness study.

The presence of two vehicle trails (judged to meet the BLM definition of a road) in the northern and southern portions of this area require boundary changes (see map). Because of these roads, we recommend approximately 3,000 acres south of Woody Creek and 5,000 acres in the north (T21N R41E and T21N R42E) be eliminated from the roadless area boundary. The remaining roadless area has significant wilderness attributes and few human developments.

MT-020-045 HAGEN GAP


T20 N
T 19 N
R 41 E
R 42 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
V
S
V-WR
MP
MF
Creek
Woody
Von Norman P O
FAP 19
FAS 460

MT-020-045 - HAGEN GAP (TRA 66)

Acreage: 10,861 - Federal (TRA-17,665)

Area Description

The Hagen Gap area is 20 miles east of Jordan, Montana, and three miles north of Highway 200.

Access is via a county road onto the ridge north of Spring Coulee, in the northeast corner of the area.

The roadless area is drained from the south by Kelly Creek and Seven Tree Coulee, tributaries of Big Dry Creek. In the northern portion of the area, Spring Coulee and several of its tributaries drain east into Big Dry Creek. The area is generally rolling terrain with somewhat broken terrain toward the eastern boundary and north of Spring Creek.

The vegetation is predominantly grassland with a very few trees in some coulees.

Antelope and raptors were seen. One would expect to see deer, fox, and some riparian bird species.

No prehistoric sites were located, although they probably exist in the area.

Human Developments

The area is heavily interlaced with vehicle trails (this is typical of public lands which have been used primarily for sheep grazing). Four of these trails meet the BLM "road" definition. In addition, other livestock-associated developments are greater in density and impact than average.

There is a 320-acre private inholding on Kelly Creek. The condition of the vehicle trails and type of fences suggest that sheep have grazed this area until recently. The area is now in a transition to cattle grazing.

Wilderness Suitability Analysis

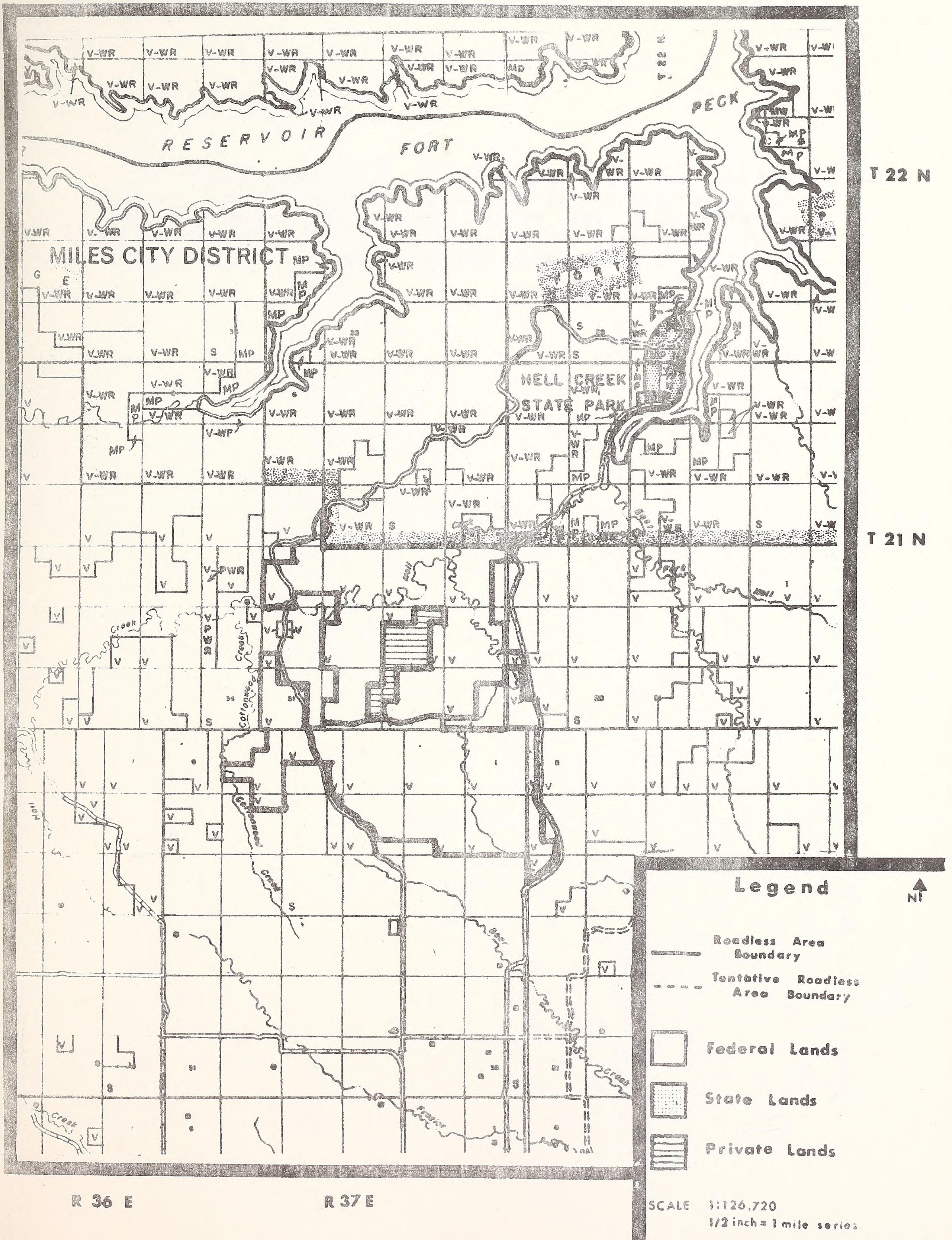
Nowhere in this area can one escape the feeling that there is a ranchhouse, a highway, or some other work of man over the next ridge. In fact, off-site impacts are substantial. Human developments in the area are pervasive and evident everywhere to the visitor. In addition, there are few opportunities for, and little diversity of, primitive forms of recreation.

Recommendations

The Hagen Gap area should not be considered for further wilderness study.

The four roads in this area require significant boundary changes (see map).

MT-020-046 TRUMBO RANCH

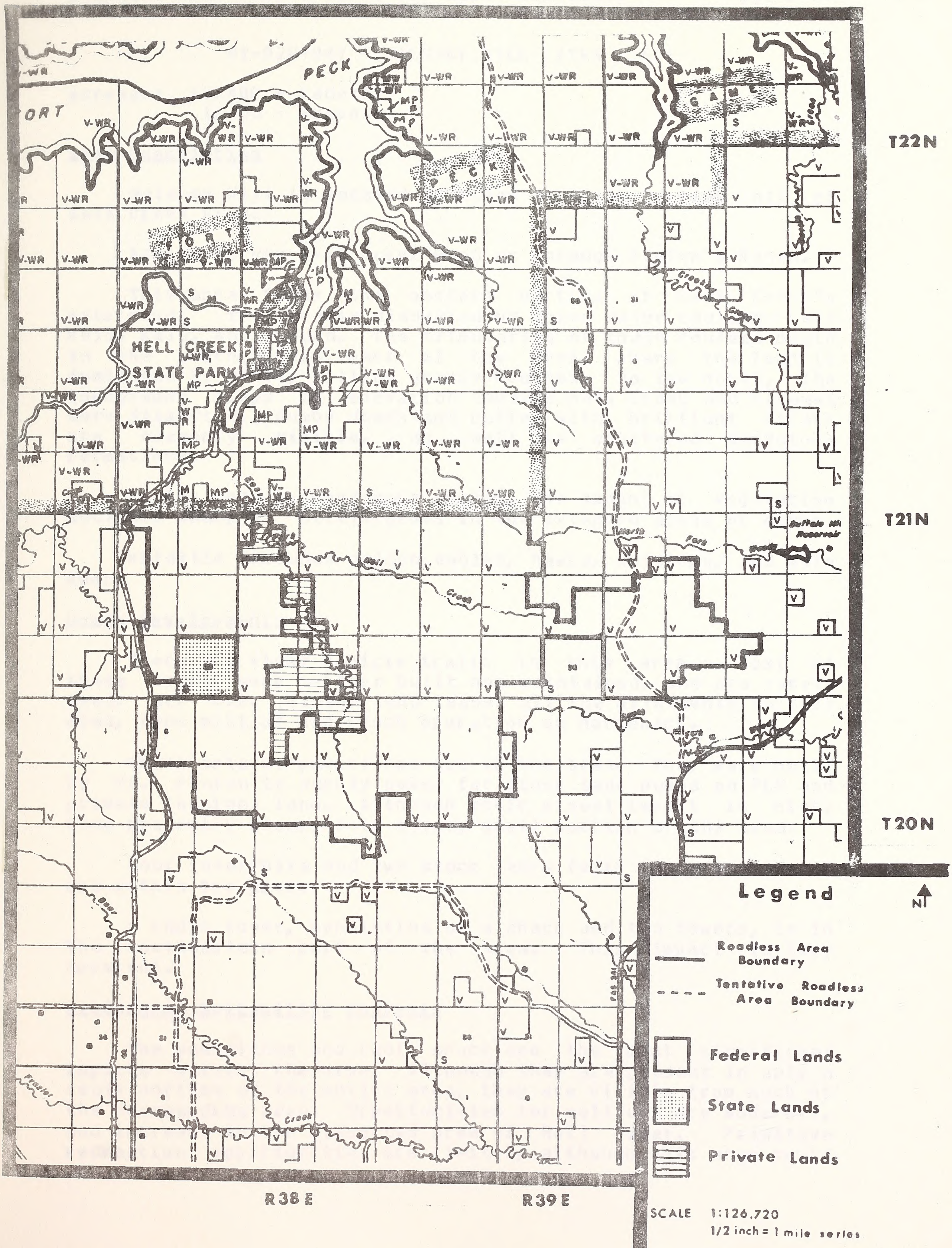

FORT PECK RESERVOIR
MILES CITY DISTRICT
HELL CREEK STATE PARK
FORT
T 22 N
T 21 N
R 36 E
R 37 E
V-WR
V-PWR
MP
V
S
Cottonwood Creek
Hell Creek
Bear Creek
Prairie Creek
Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-046 - TRUMBO RANCH (TRA 60)

Acreage: 10,136 - Federal
716 - Private

The Trumbo Ranch area was eliminated from the wilderness inventory because two vehicle trails in the area meet the BLM "road" definition. These roads divide the area into three roadless units of 4,812, 4,224, and 1,100 acres, each of which is less than the 5,000-acre minimum limit established by law.

MT-020-047 MALONEY HILL



FORT PECK
PECK
FORT
GAME
HELL CREEK STATE PARK
V-WR
MP
S
V
Creek
North Fork
Buffalo Hill Reservoir
Bear
Frazier
T22N
T21N
T20N
R38E
R39E
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
N
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-047 - MALONEY HILL (TRA 61)

Acreage: 19,480 - Federal
1,466 - Private

Area Description

Maloney Hill is located 20 miles north of Jordan off of Hell Creek Road.

Access is via Hell Creek Road or through Binion's Ranch.

This area forms the eastern portion of Hell Creek's watershed. The area is dissected by three major coulees--East Reid, Reid, and Jordan. The tributaries of these coulees begin in the southeastern part of the area, where the land is dominated by gently rolling grassy benches. To the north, the topography drops in elevation towards Hell Creek and becomes more dissected. Gumbo domes and buttes with brilliant strata are commonly visible, as well as scattered sandstone formations.

As the land becomes more rugged, the amount of vegetation declines sharply. Little grows in the extended areas of gumbo.

Wildlife includes golden eagles, hawks, antelope, and mule deer.

Human Developments

There are eight vehicle trails in this area. Most of these trails were neither built nor maintained, and are rarely used. Mr. L.B. Binion, who leases all the allotments in this area, runs most of his ranch operation on horseback.

Three sets of powerlines are in the area. They were built by Mr. Binion to supply power for stock tank pumps on BLM and private (Binion) land. Although their visual impact is high, they presently occupy only a very small portion of the area.

Four reservoirs and two stock tanks (with electric pumps) are within the area.

A radio tower, consisting of a shack and two towers, is in the southeastern part of the area. This impact is very apparent.

Wilderness Suitability Analysis

The powerlines and radio shack are the most significant impacts within the area. Although they are present in only a small portion of the entire area, they are visible from much of the surrounding area. Opportunities for solitude are moderate, and increase in the dissected area of Hell Creek. Primitive recreation opportunities are limited, although this area could

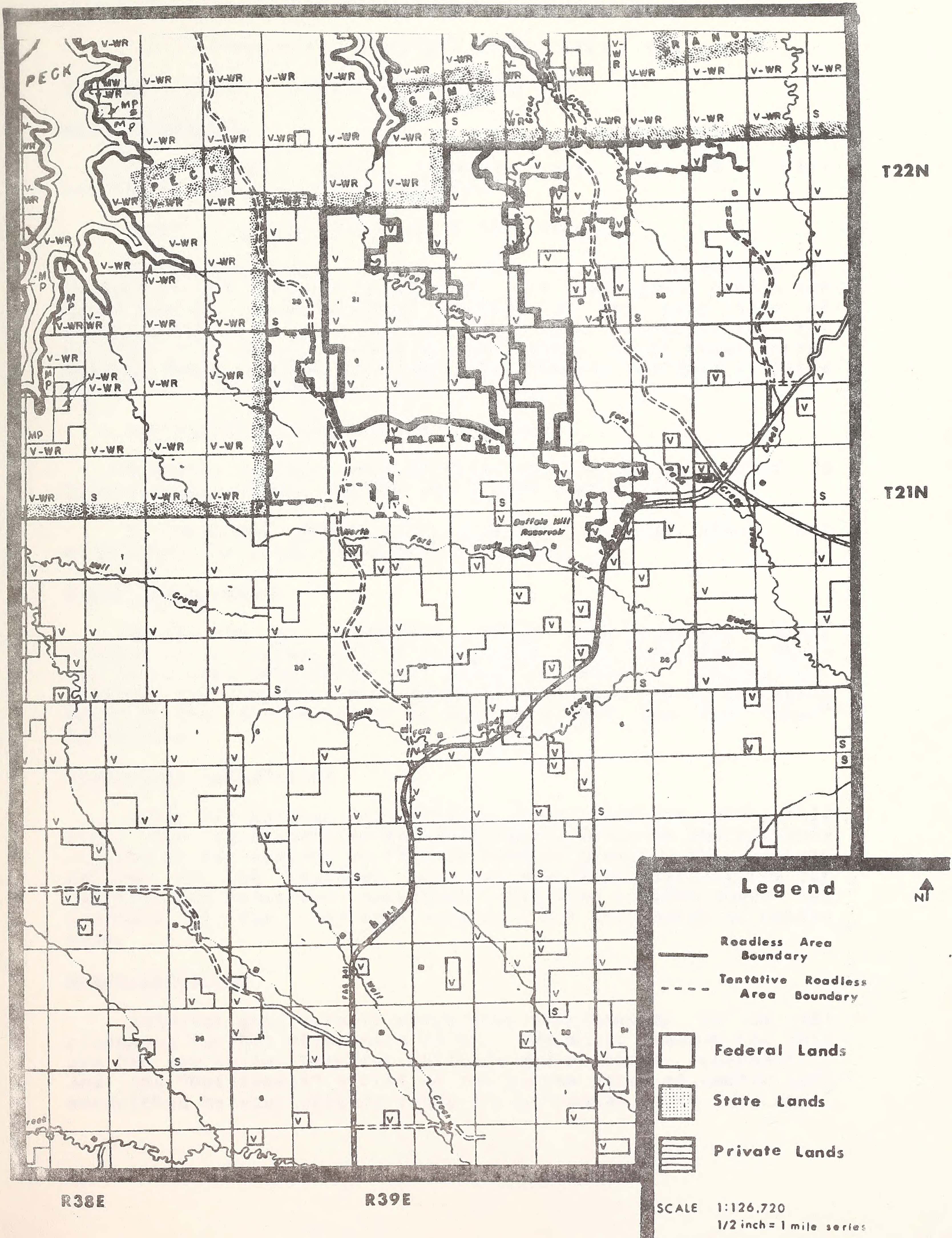
be utilized by visitors to the Hell Creek Recreation Area.

Recommendations

Because of the significant impacts, we do not recommend this area for further wilderness study.

We strongly recommend however, that the scenic overlook proposed by Lad Coates (Miles City Recreation Specialist) be implemented and that the area receive careful management considerations to protect its scenic resources.

MT-020-048 CROOKED CREEK


T22N
T21N
R38E
R39E
PECK
GAME
RANGE
V-WR
V
S
MP
North Fork Woody Creek
Buffalo Hill Reservoir
Fort
Crooked Creek
Wolf Creek
South Fork Woody Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-048 - CROOKED CREEK (TRA 62)

Acreage: 6,528 - Federal (TRA-12,006)

Area Description

The Crooked Creek roadless area is 20 miles north-northeast of Jordan, Montana.

There is no public access to this area.

The roadless area contains most of the headwaters of Crooked Creek. These headwaters are moderately broken and quite rugged. A substantial portion of the main stem of Crooked Creek is on private lands which penetrate into the roadless area from the north and the south. As it flows north, Crooked Creek crosses the Charles M. Russell National Wildlife REfuge and flows into Fort Peck Reservoir.

Vegetation is exclusively rangeland.

Numerous antelope were observed and one could expect to find coyotes, foxes, snakes, and a wide variety of birds.

No cultural sites were observed in this area, but prehistoric cultural sites probably exist.

Human Developments

There are no reservoirs within this roadless area. Grazing is pervasive, but of reasonably light intensity. There are no private inholdings or signs of mineral exploration. Hunting is probably the major recreational use in the area. Three of the vehicle trails in this area meet the BLM "road" definition.

Wilderness Suitability

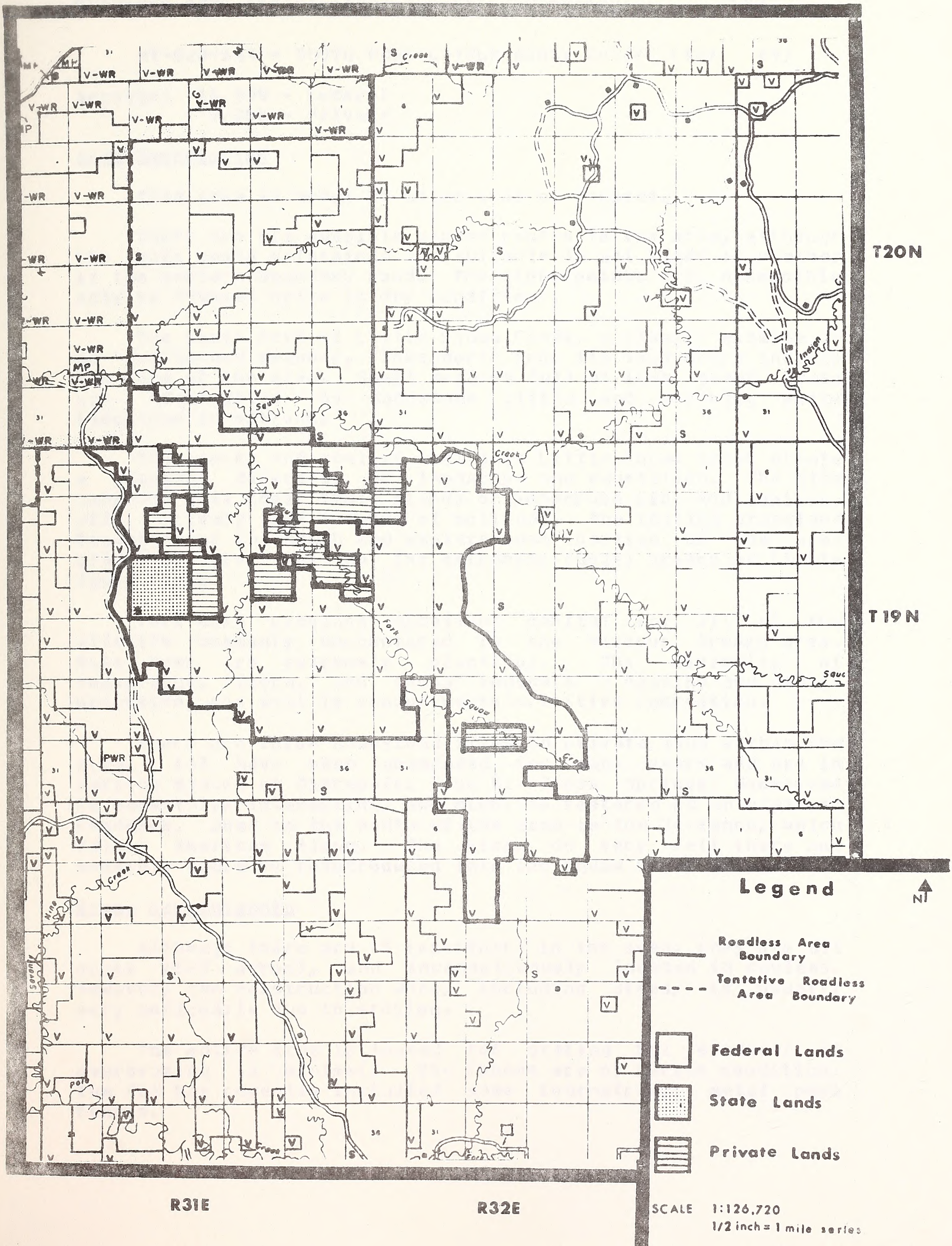
While the natural integrity of this area is moderately high, the opportunities for primitive recreation and solitude are low in the western portion of Crooked Creek. The eastern portion of the roadless area has even lower suitability for solitude and primitive recreation. The neck between these two portions of the roadless area is a 0.5 mile strip of public land.

Recommendations

Although this area is relatively untrammeled, we do not recommend further wilderness study. The major reasons for this are the low suitability for solitude and primitive recreation, and the "bottleneck" effect of the narrow strip of public land sandwiched between private lands along Crooked Creek (see map).

Significant boundary changes are necessary in Crooked Creek because of roads. Approximately 2,000 acres in the northeastern portion of the area, and 3,000 acres in the south are excluded for this reason (see map).

MT-020-049 SOUTH FORK LITTLE SQUAW CREEK


T20N
T19N
R31E
R32E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
V-WR
MP
PWR
Squaw Creek
Indian Creek
Nine Creek
Savant
Fork

MT-020-049 - SOUTH FORK LITTLE SQUAW CREEK (TRA 49)

Acreage: 16,899 - Federal
2,208 - Private

Area Description

This area is about 20 miles west of Brusset.

There are six possible access routes to the area, although the only route maintained and suitable in all kinds of weather is the western boundary road. The other points are accessible only by 4-wheel drive in dry conditions.

The South Fork of Little Squaw Creek, a classic example of an entrenched meander, flows north from its headwaters through the core of the area. Small meadows full of lush green grass are highlighted by sandstone cliffs and striking white limestone formations.

The creeks and coulees that join Little Squaw Creek create a pleasant diversity of landscape and vegetation. The side canyons, with their small stands of ponderosa pine and juniper, offer privacy and a sense of solitude. The rolling grassland foothills of the south and western-most portion of the area gradually give way to the extremely rugged breaks of Little Squaw Creek.

This area provides excellent habitat for all of the wildlife commonly encountered in the Missouri Breaks area. Mule deer are extremely plentiful. The diversity of topography, flora, and fauna indicate a healthy and stable ecosystem, one that is conducive to primitive recreation.

There are three homestead sites on private land within the area. All have been abandoned for many years and are in varying states of disrepair. The H. Cross Springs Homestead is especially interesting, and might be restored as an historic landmark. Just to the south of the area is the 74 Ranch, which raises American Bison. The bison do very well there and possibly could be reintroduced into the Squaw Creek area.

Human Developments

Although there are 15 reservoirs in the area, they are all small (1-3 acres), and inconspicuously located in coulees. However, the construction work, including dikes, is usually very noticeable due to erosion.

The entire area is leased for grazing but evidence of overgrazing is minimal. The fences are of varied condition. The BLM has recently installed some four-strand, metal post fences.

[illegible]

[illegible]

acreage: [illegible] - federal
[illegible] - private

[illegible]

This area is about 20 miles [illegible]

There are six [illegible] the only trails [illegible] in the [illegible] only by [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Of the eight vehicle trails in the area, all but two are virtually unnoticeable except where erosion has occurred on steep topography. These six trails are heavily overgrown and rapidly disappearing. The other two vehicle trails, in many places overgrown and rutted, probably receive the most use of any vehicle trails in the area. It is

unlikely, though, that they would be used by through traffic, because their condition renders them impassable to most vehicles.

Private inholdings appear to be used only for grazing. Most of the vehicle trails which pass from BLM to private land are virtually unnoticeable and severely eroded.

Wilderness Suitability Analysis

The human developments have a moderate influence on the overall natural integrity of this area. The impacts are limited in scope and size and the vast majority of the area is pristine.

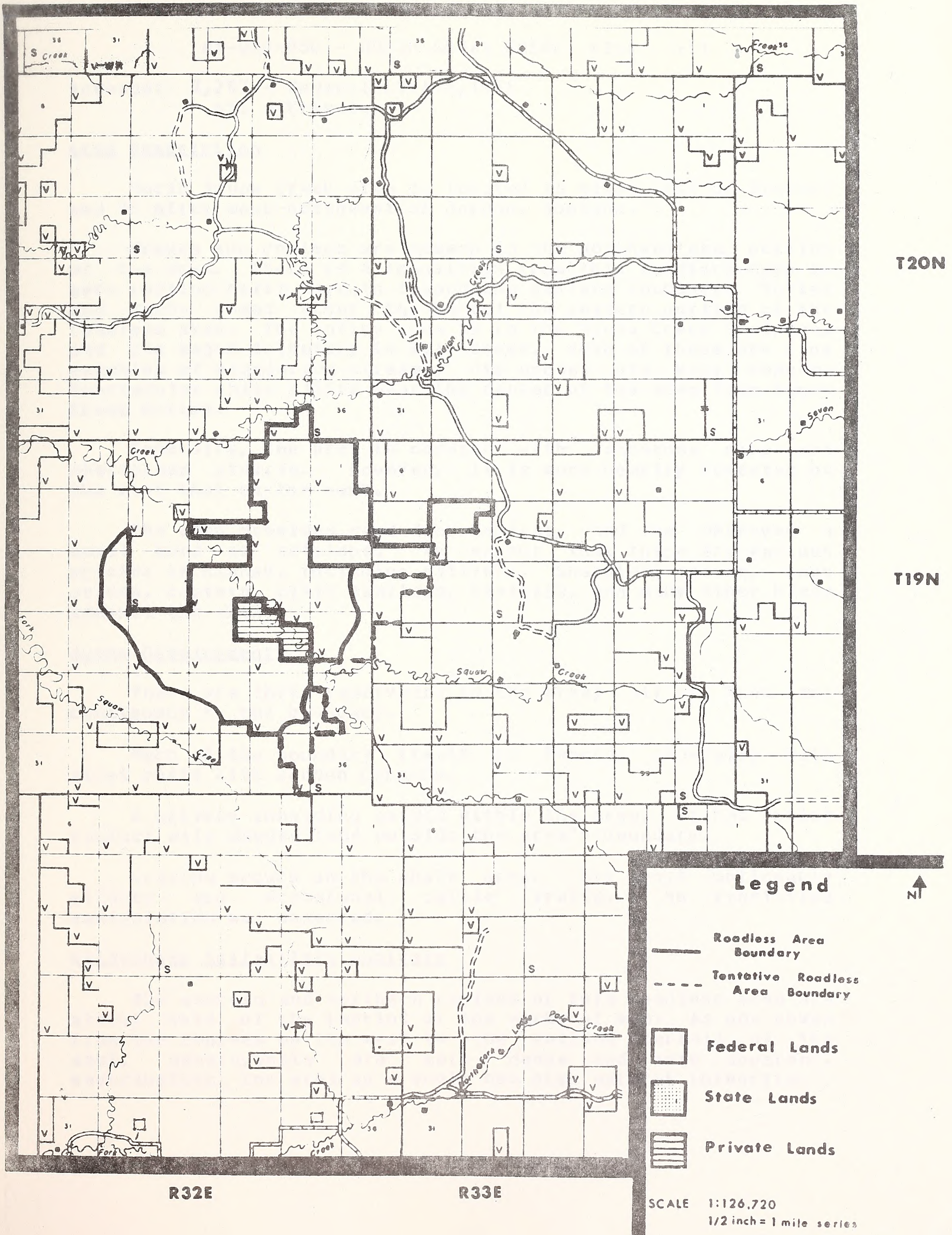
The large size of this area, coupled with a diversity of both topographic and vegetative screening, provides a very high opportunity to find solitude. The area has moderate opportunities for primitive recreation. The most challenging terrain can be found in the rugged core area of Little Squaw Creek.

Recommendations

We recommend this area for further wilderness study. Although it contains significant private inholdings, its wilderness quality is uniformly high.

In addition, during wilderness study the feasibility of combining this area with North Squaw Creek (53) should be thoroughly explored. They are separated by a vehicle track that was constructed but appears to be seldom, if ever, used.

MT-020-050 NORTH SQUAW CREEK


T20N
T19N
R32E
R33E
Indian Creek
Squaw Creek
Seven
Lodge Pole Creek
North Fork
Fork
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-050 - NORTH SQUAW CREEK (TRA 53)

Acreage: 7,257 - Federal (TRA-9,499)
655 - Private

Area Description

North Squaw Creek area is located 15 miles west of Brusett and 35 miles west-northwest of Jordan, Montana.

Breaks and coulees are common in the northwestern portion of the area. There is a transition from this landform-type to more rolling hilly terrain toward the eastern boundary. Buttes and gumbo domes occur throughout the western portion of the roadless area. The entire area is in the Squaw Creek drainage, and its major tributary is Wolf Creek. Both of these are fine examples of meandering streams; dry oxbows are very common. Spectacular white cliffs near the center of the area form Squaw Creek Bottom.

Generally, the area is covered with ponderosa pine and shortgrass prairie. However, it is more heavily forested on the west than on the east.

The area provides good deer habitat, and we observed a small herd of antelope. We expect that there are various species of snakes, including rattlers. Sharptail grouse, sage grouse, raptors, cliff swallows, kestrels, and many other birds inhabit the area.

Human Developments

There are three reservoirs in the area; all of them are contiguous to the boundary.

Much of the boundary itself is fenced, generally with steel posts with wooden corners.

A private inholding exists within the area. It has point contact with deeded land outside the area's boundary.

Grazing occurs on the whole area. The most noticeable effects are occasional cattle trails. No vegetative manipulation was observed.

Wilderness Suitability Analysis

The western and northern regions of this roadless area are almost void of the imprint of the works of man. As one moves from the coulees on the west to the rolling terrain of the east, developments are more dense and more apparent. Nevertheless, the area as a whole has high natural integrity.

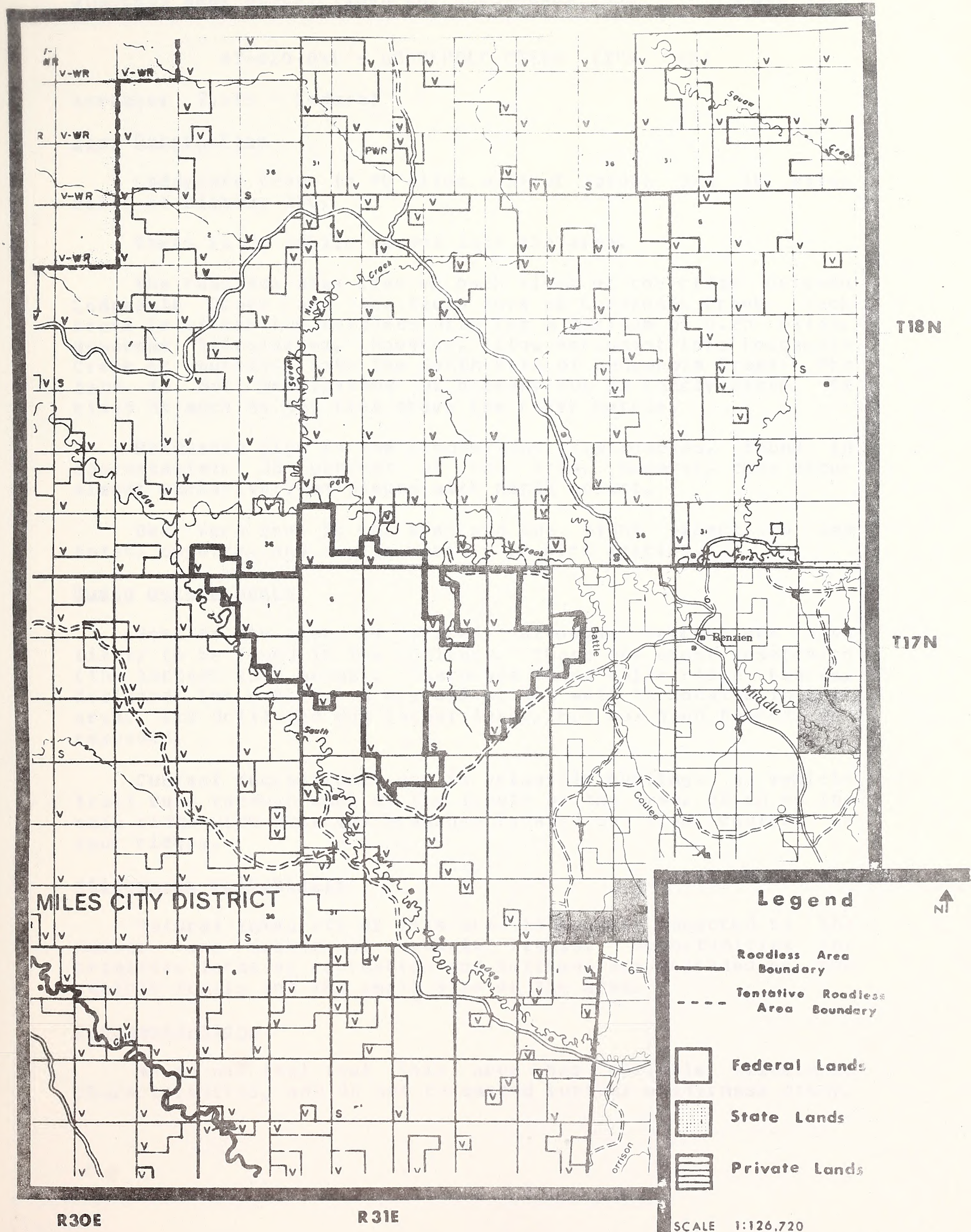
Opportunities for primitive forms of recreation are high in this area. There is sufficient topographic and vegetative screening to create opportunities for solitude, often quite close to the boundary. The diversity of land and biological forms enhances a recreational experience in the area.

Recommendations

We recommend North Squaw Creek for further wilderness study. In addition, during the wilderness study, the feasibility of combining this area with the South Fork Little Squaw Creek (MT-020-049) should be thoroughly explored. They are separated by a vehicle track that was constructed but appears to be seldom, if ever, used.

Two boundary revisions are necessary in this area due to vehicle trails which meet the BLM definition of a "road." These roads remove approximately 600 acres in the east and 350 acres in the south.

MT-020-051 LODGEPOLE CREEK


T18N
T17N
R30E
R31E
MILES CITY DISTRICT
Benzien
Squaw
Creek
Nine
Creek
Seventy
Lodge
Pole
Battle
Middle
Fork
Coulee
South
Morrison
V-WR
PWR
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-051 - LODGEPOLE CREEK (TPA 52)

Acreage: 7,585 - Federal

Area Description

Lodgepole Creek is 40 miles west of Jordan and 18 miles north of Highway 200.

There is no public access into the area.

The roadless area lies on both sides of the ridge between Lodgepole Creek and the South Fork of Lodgepole Creek. Each creek is within the roadless area for a maximum of 0.25 miles. Numerous tributaries, however, flow northeast into Lodgepole Creek or southwest into the South Fork of Lodgepole Creek. The land is not precipitous or broken, but is fairly steep. It rises as much as 400 feet above the river bottom.

Ponderosa pine is the predominant tree species, found in approximately 30 percent of the area. However, they occur almost exclusively on slopes with north aspect.

Deer were seen in the area and one might expect to see foxes, coyotes, and a wide variety of bird species.

Human Developments

Most of the area is grazed, although cattle are less likely to be found in the conifers. There are eight reservoirs (the largest is 5 acres). There are three major ridge fences, designed for cattle. A dry oil or gas well is located in this area. Its drill pad was rather large, but has been fenced and reseeded.

Current recreational use is primarily hunting. A vehicle trail runs through much of the length of the area, often on the main ridge with numerous branches located on side coulees or spur ridges.

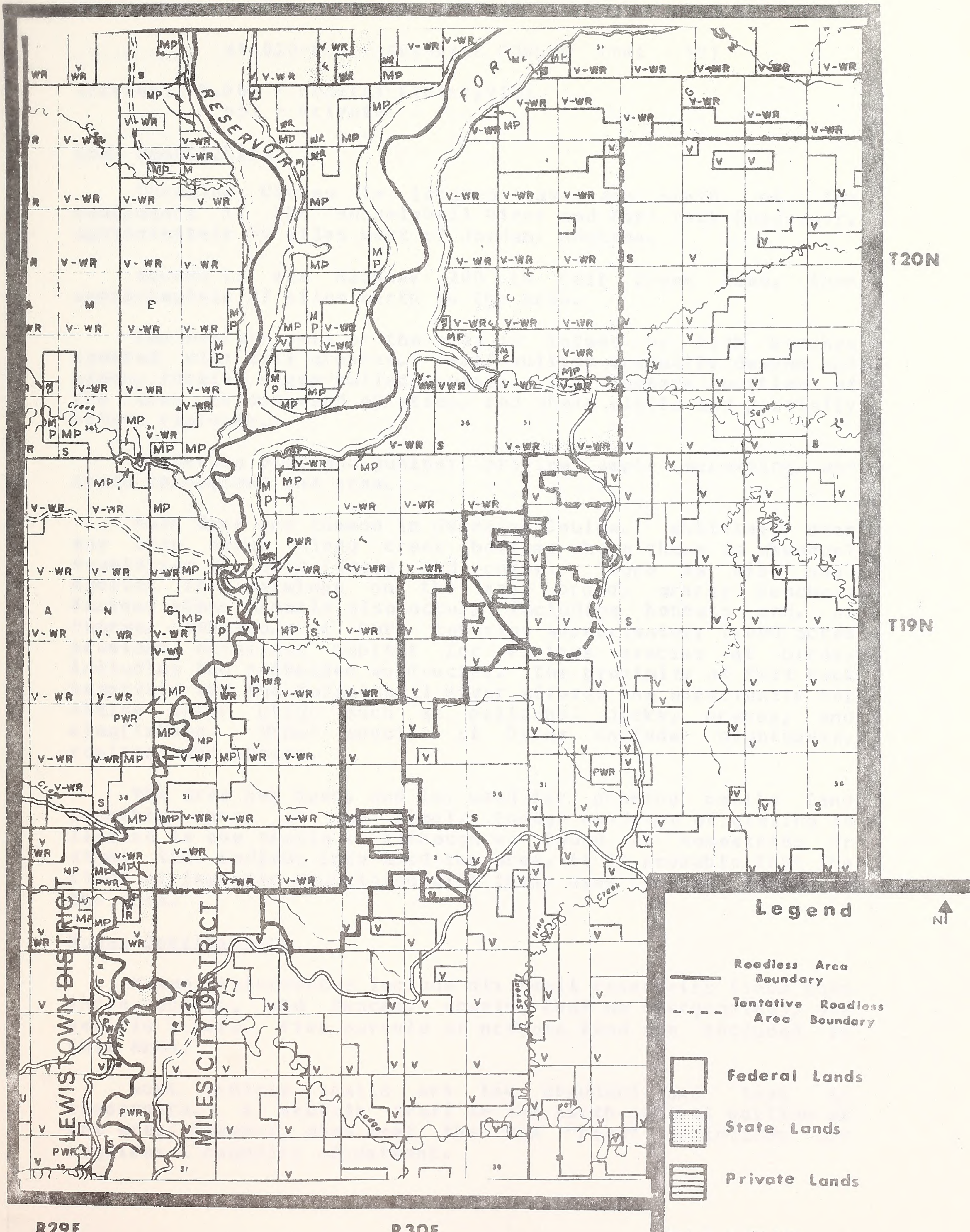
Wilderness Suitability

Natural integrity of this area is heavily impacted by the number and extent of vehicle trails. Opportunities for primitive forms of recreation and solitude are degraded by the vehicle trails and the small size of the area.

Recommendations

We do not feel that this area has suitable wilderness characteristics, and do not recommend further wilderness study.

MT-020-052 GERMAINE COULEE


FORT PECK RESERVOIR
T20N
T19N
R29E
R30E
LEWISTOWN DISTRICT
MILES CITY DISTRICT
V-WR
MP
PWR
V
S
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-052 - GERMAINE COULEE (TRA 48)

Acreage: 5,065 - Federal (TRA-7,912)
453 - Private

Area Description

Germaine Coulee is located east and south of the confluence of the Musselshell River and Fort Peck Reservoir, approximately 50 miles west of Jordan, Montana.

Access is via Highway 200 to Calf Creek Road, then approximately 22 miles north to the area.

The eastern part of the area is formed by high benches covered with tall grasses. Small gullies gradually deepen and widen, forming steep-walled coulees. The western portion of the area is composed of steep, red shale cliffs and partially broken rimrocks.

Ponderosa pine and juniper provide ample screening and shade throughout the area.

Mule deer are common in Germaine Coulee. Whitetail deer may also occur along creek bottoms where there is abundant vegetation for both forage and cover. There is also good habitat for antelope on the many broad, grassy benches. Various other mammals also occur, including bobcats and, of course, coyotes. A burn covering approximately 1,000 acres provides excellent habitat for various species of birds, including the redheaded woodpecker. The proximity of Fort Peck Reservoir and the Musselshell River affords the opportunity for seeing water birds such as pelicans, ducks, cranes, and kingfishers. Other species of birds include nighthawks, raptors, and grouse.

The area has been, and is, used for grazing cattle (and possibly sheep at one time), though evidence of grazing is limited to cow trails . Although we found no homesteads or signs that Indians once used the area, it is probable that the kinds of features associated with these uses can be found in the area.

Human Developments

Human disturbances include six small reservoirs (less than three acres), old fences, grazing (but no overgrazing), and vehicle trails. Five parcels of private land are included in this area.

Most vehicle trails are low standard and lead to reservoirs. A vehicle trail in the north-central portion of the area, however, does meet the BLM "road" definition and requires a boundary adjustment.

Wilderness Suitability Analysis

This area has definite wilderness qualities. Impacts of man are localized in 1-2 percent of the area, leaving the remainder quite pristine. Opportunities for solitude and primitive recreation are both high.

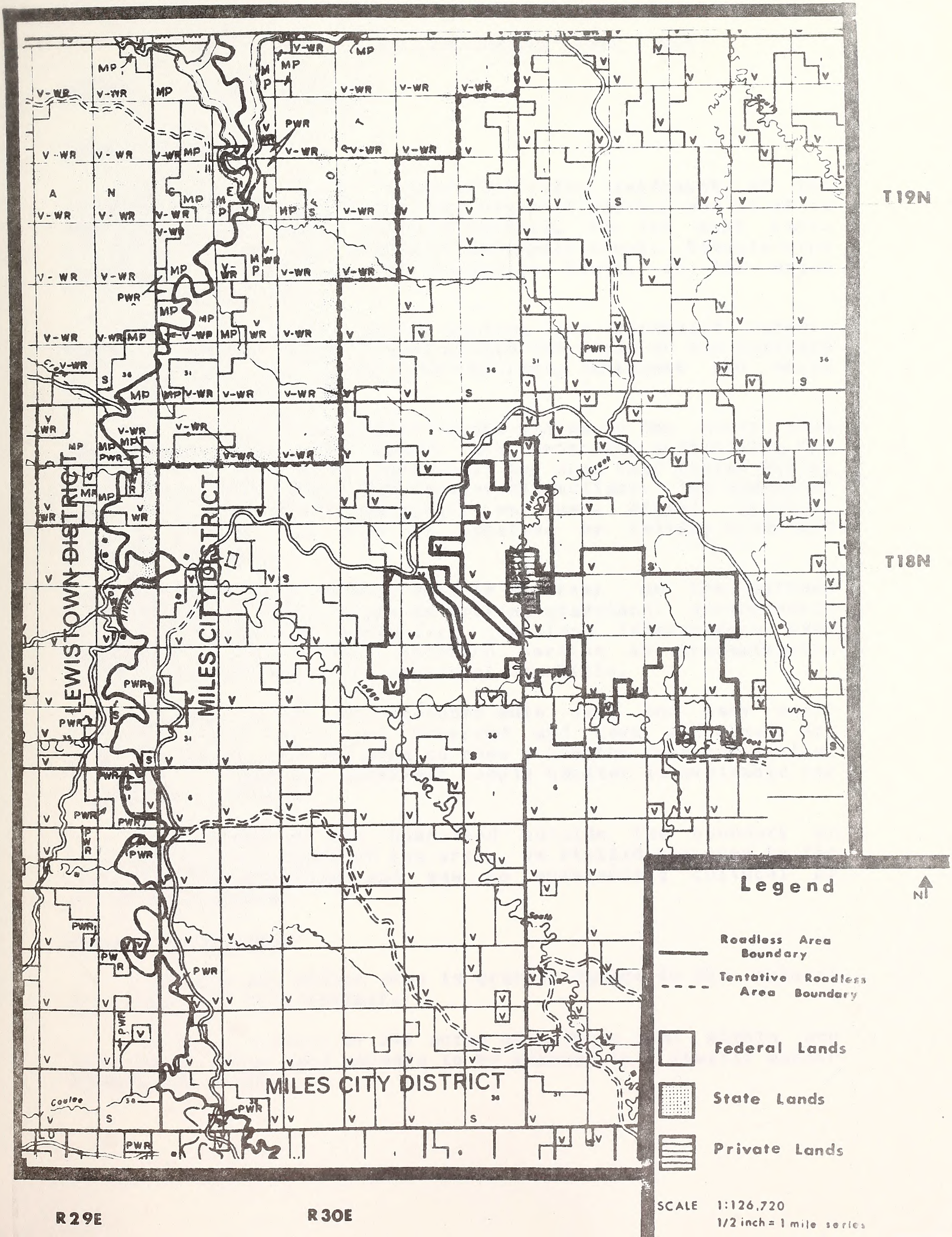
In addition, Germaine Coulee is contiguous to roadless lands on the Charles M. Russell National Wildlife Refuge, and is the only area we found that did not have a road between it and the Musselshell River.

Recommendations

Because of its pristine condition and other significant wilderness attributes, we recommend that Germaine Coulee be studied for possible inclusion in the Wilderness system.

A boundary adjustment is necessary in this area because of a vehicle trail which bisects the area in T19N, R30E, Sections 12, 13, 24 (see map). We feel this trail meets the BLM "road" definition as it is regularly maintained and used, providing the only means of access to private lands on the shore of the reservoir.

MT-020-053 JACK LANE COULEE


T19N
T18N
R29E
R30E
LEWISTOWN DISTRICT
MILES CITY DISTRICT
MILES CITY DISTRICT
Creek
Lodge
Coulee
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
V
V-WR
MP
PWR
S

MT-020-053 - JACK LANE COULEE (TRA 50)

Acreage: 7,938 - Federal
403 - Private

Area Description

Jack Lane Coulee is located six miles southeast of the confluence of the Musselshell and Missouri Rivers, and 15 miles due west of the town of Brusett, Montana. For the most part, it lies on the north side of Lodgepole Creek. Seventy-nine Mile Creek, a tributary of Lodgepole Creek, is the major drainage in this area.

The closest public access is from the northeast corner, where a county road passes within 100 yards of the roadless area boundary. The access from the west, southeast and north is across private land.

This area is typified by breaks rising to the north from Lodgepole Creek. The breaks are generally gentle with the exception of the eastern portion of the area near Finley Butte, which has some steep spectacular dissections. The sandstone and limestone breaks culminate on lush, grassy benches. Further north, the area is typified by rolling hills and timbered coulees.

The vegetation of this area is diverse; on the bottoms near Lodgepole Creek there is rolling grassland. Moving north into the breaks, one encounters grassland interspersed with ponderosa pine. The northern portion is predominantly ponderosa pine within the crests of the hills.

Wildlife in the area includes mule deer and many small mammals. Deer scat was observed and cover and browse are adequate enough for the area to have a healthy deer population. A red-tail hawk was observed; ample habitat is available for raptors in the area.

We observed an old homestead outside the boundary on Lodgepole Creek south of the area. We visited the area to the north of this homestead and saw no outstanding cultural or historic features.

Human Developments

Although the entire area is grazed, damage to the natural processes has been minimal.

There is a total of 296 acres of private land within one inholding. This land appears to be managed in a similar manner to the BLM lands.

Vehicle trails generally are more noticeable and create a larger disturbance here than in the average roadless area. The vehicle trails on the west end are possibly old fire trails built to control a fire that burned a large portion of the area in 1973. The trails here appear to have been built but are not maintained. They seem, in fact, to be abandoned. The vehicle trails in the eastern portion appear to be used primarily for grazing, fencing, and reservoir maintenance. The trails here generally do not appear to have been maintained, except for a few contour points that have been bladed.

Wilderness Suitability Analysis

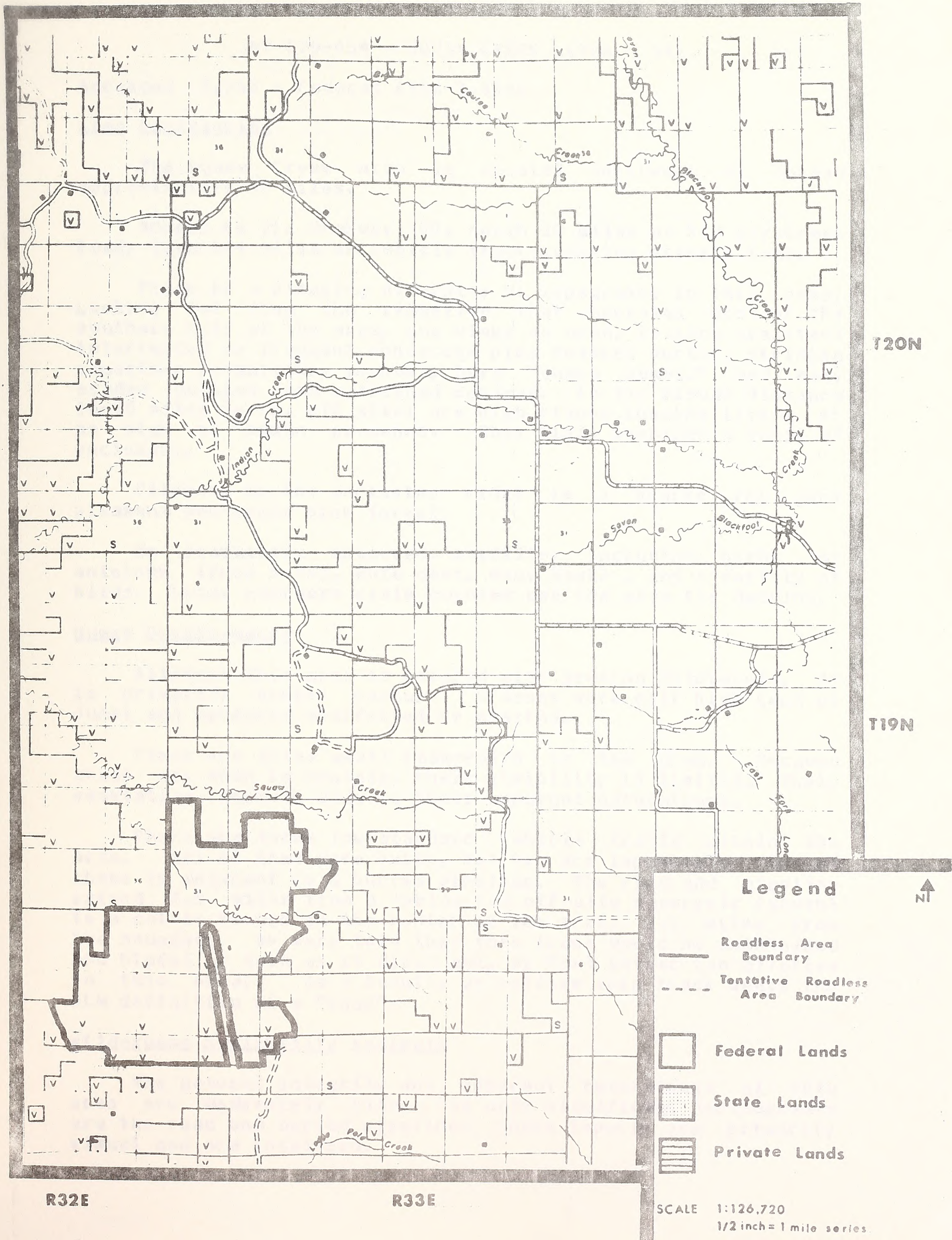
The human developments in this area have a moderate effect on its natural integrity, but they are very apparent to most visitors. There are some opportunities for solitude and primitive recreation, but they are not significant.

Some portions of this area, particularly the area near Finley Butte and the Lodgepole Creek Breaks, have outstanding scenic qualities.

Recommendations

Due to the high density of vehicular trails and the intensive amount of new fences, we do not recommend further wilderness study of the Jack Lane Coulee area. However, we suggest the area near Finley Butte and Lodgepole Creek Breaks be considered in further recreation planning.

MT-020-054 SQUAW CREEK


T20N
T19N
R32E
R33E
Big
Coulee
Creek
Blackfoot
Creek
Indian
Creek
Seven
Blackfoot
East
Fork
Squaw
Creek
Lone
Pole
Creek
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-054 - SQUAW CREEK (TRA 54)

Acreage: 7,066 - Federal (TRA-7,393)

Area Description

The Squaw Creek area is located northwest of Jordan approximately 40 miles.

Access is via Highway 200, north 20 miles on Big Dry Creek Road, then 3-4 miles on vehicle track crossing private land.

There is a pleasing diversity of topography in this area. Looking out from the ridgeline that encloses most of the southern half of the area, one views an open, rolling grassland interrupted by frequent ponderosa pine covered buttes, striking sandstone formations, rounded, bare "gumbo domes," and many eroded gullies and watershed coulees. In the visual distance (6-10 miles north, off site) are high ridges showing little or no sign of human presence. This vista inspires a sense of enclosure.

Climbing up the enclosing ridge is a sparse yet very pleasant ponderosa pine forest.

We frequently observed wildlife, including herds of antelope (from 3-14), mule deer, many hawks , and a variety of birds. Local ranchers claim coyotes use the area for denning.

Human Developments

Although this area is covered with grazing allotments, it is primarily winter pasture. Grasses were calf high (end of June) and appeared unaffected by grazing.

There are three small reservoirs in the area. Because these are down in coulees, their visibility is limited. Their vegetative regrowth adds to their apparent naturalness.

There are three low-standard vehicle trails within the area. All of them were built, but two are impassable. One of these is adjacent to a buried pipeline. The road and pipeline extend 2.5 miles from a spring-fed off-site reservoir (south) to a cattle trough in the center of the area, 0.5 miles from the boundary. We were told that this track would be maintained and bladed as soon as it dried out, by Paul Berger (an allottee in this area). As a result, we believe this track meets the BLM definition of a "road".

Wilderness Suitability Analysis

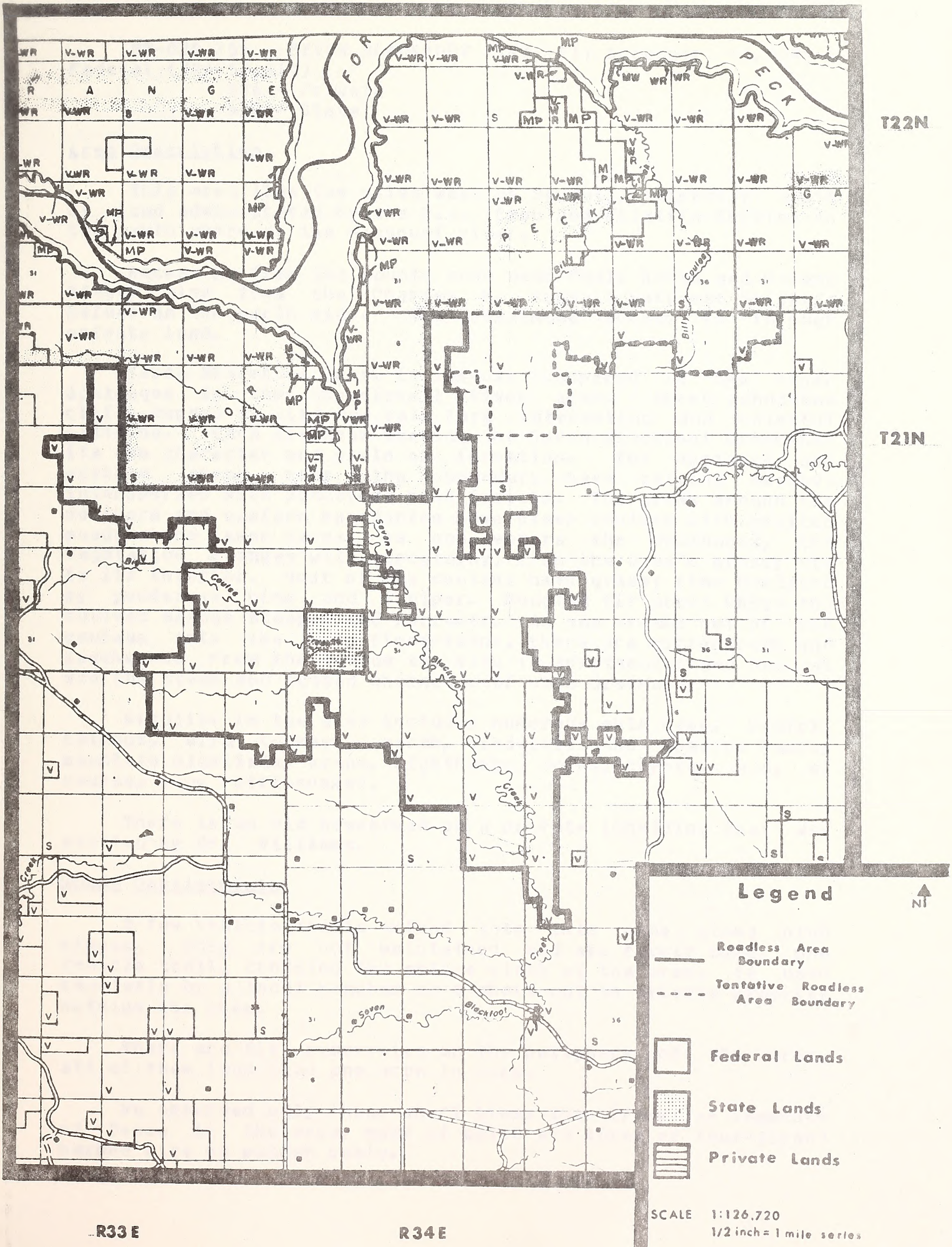
The natural integrity and apparent naturalness of this area are moderately high. The only significant developments are the road and buried pipeline; these impacts are primarily visual and are localized.

Diversity of topography, vegetation, wildlife, and scenic values offer varied opportunities for primitive recreation. The remoteness of this area, (access is via 20 miles of low-standard roads), as well as diversity add to its available opportunities for solitude.

Recommendations

Because of the road essentially cutting Squaw Creek in half, we do not recommend this area for further study. A road extends 2.5 miles into this area from the southern boundary requiring a boundary revision (see map).

MT-020-055 SEVEN BLACKFOOT


T22N
T21N
R33E
R34E
FORT PECK
RANGE
Billy Coulee
Bull Coulee
Seven Blackfoot Creek
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-020-355 - SEVEN BLACKFOOT (TRA 57) Acreage: 50,969 - Federal (TRA-52,812)
806 - Private
640 - State

Area Description

This area lies two miles west of Brusett, directly south of land administered by the U.S. Fish and Wildlife Service on the south shore of the Missouri River.

Access is from the county road near Chalk Butte and Herman Ridge, also from the Charles M. Russell National Wildlife Refuge on the north side. The remaining access is through private land.

Seven Blackfoot Creek is immense compared to the other drainages in the Musselshell River area. Steep sandstone cliffs carved by wind and rain form interesting and colorful patterns. Each drainage feeding the Seven Blackfoot Creek has its own character and style of formation. The northern and western areas near the boundary have rolling meadows interspersed with ponderosa pine forests. The areas around the southern and eastern boundaries have steep coulees with smaller meadows and fewer trees. As one enters the drainages, the vegetation changes with topography, from the area's grassy rim to its interior. Most of the coulees have grassy rims bordered by ponderosa pine and juniper. Douglas fir grows where the coulees become steeper and narrower. As one breaks out of the coulees onto the wide floodplains, there are cottonwoods and sagebrush. From the bottom the view is spectacular and one can see the steep and rugged character of each drainage.

Wildlife in the area includes numerous mule deer, prairie falcons, wild turkeys, marsh, red-tail and sparrow hawks, mountain bluebirds, wrens, nighthawks, doves, coyotes and, of course, many rattlesnakes.

There is an old homestead on a private inholding that was settled by Dr. Williams.

Human Developments

A few vehicle trails extend into this area along high ridges. They are not maintained and are rarely used. One vehicle trail, crossing the entire width of the area, is used regularly by a local rancher as a short cut to private property outside the area.

There are five reservoirs on the periphery of the area, all of them less than one acre in size.

We observed only three short (less than 1/4-mile) segments of fence in the area, most of which are three or four-strand barbed wire on wooden posts.

Grazing allotments cover the entire area, although much of the land is not used for grazing because of the steep topography. Cattle trails are apparent near the reservoirs and are occasionally seen throughout the area. Evidence of overgrazing is slight.

A private inholding (1,018 acres) exists within the area. The only developments on this land are an old homestead and corrals. This land is used solely for grazing at the present time.

Wilderness Suitability Analysis

Seven Blackfoot exhibits magnificent wilderness attributes. The area draws the visitor inward, offering outstanding vistas of deep canyons, high cliffs, wide valleys, and Fort Peck Reservoir in the distance. It offers outstanding opportunities for solitude, contributed to by its size and its diversity of topography and vegetation. The area is primarily wild. Vehicle trails extend inward on a few ridges but they are seldom used, unmaintained, and are not of significant intrusion. Fences are infrequent, as are reservoirs.

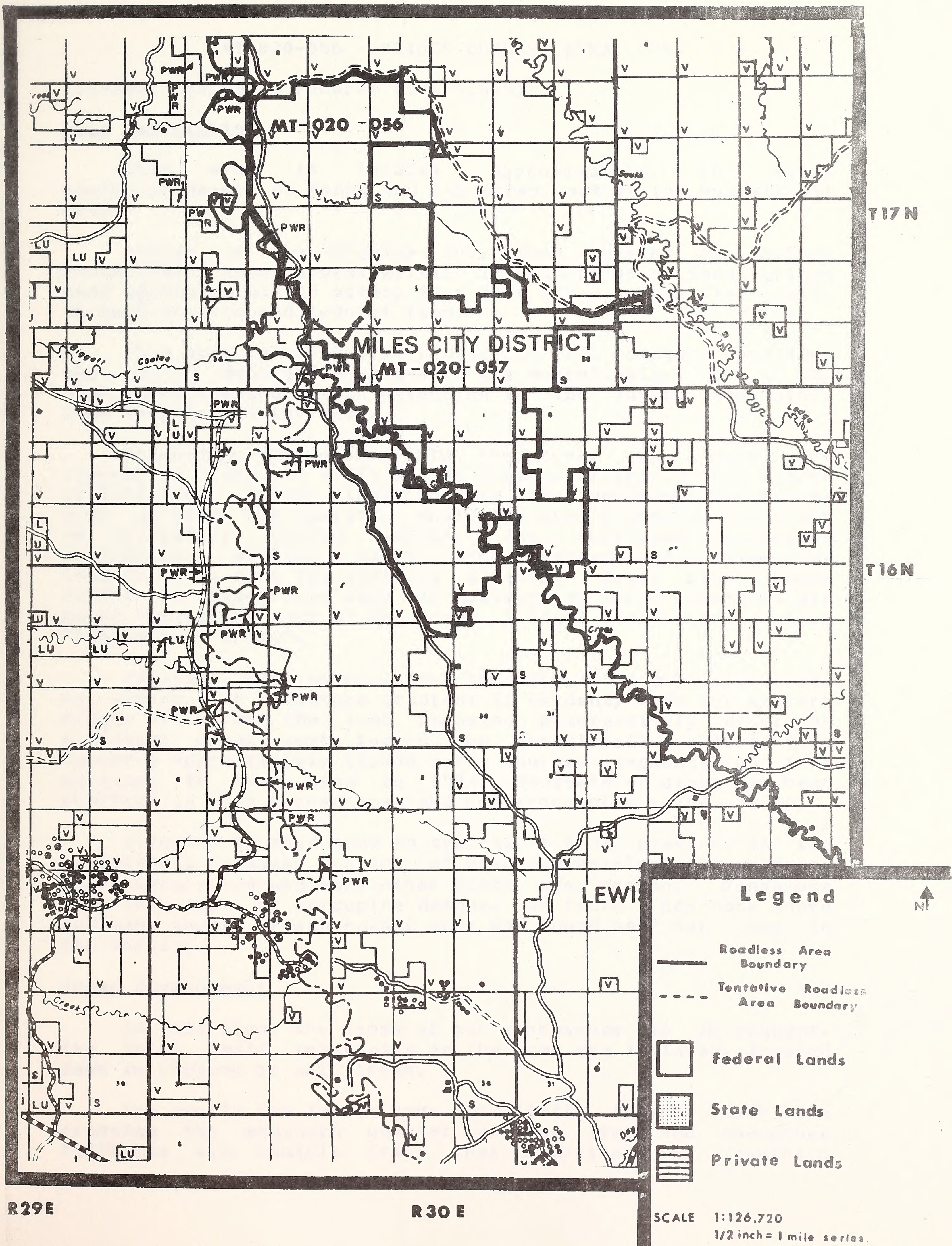
Foot or horse travel through much of the area requires some planning due to the deeply dissected topography, but trails are present, probably originating from game and cattle use.

In the heart of the area, in the bottom-land of Seven Blackfoot Creek, lies 1,018 acres of private land owned by Tom Wilson. This land is used solely for cattle grazing. An old homestead lies on the inholding. The corrals of the old homestead are used during branding. Tom Wilson has made recent improvements on the vehicle track that drops into the valley, insuring 4-wheel drive access to his inholdings. This vehicle track then proceeds unimproved south along the valley bottom, crossing some federal lands, and connects to an improved 4-wheel drive and tractor passage up a steep, dangerous climb to the top of the eastern rim where he has additional deeded agricultural property outside the boundary. This route to his deeded properties is an alternative to driving around south of the area, a one-way trip in excess of 30 miles. Tom Wilson has expressed the importance of this road to his ranch operation.

Recommendations

We recommend Seven Blackfoot most highly for further wilderness study. The wilderness attributes of this area are outstanding. At this stage, we recommend this be a single wilderness study area. However, in the study process the vehicle track crossing the entire width of the area could necessitate a change in the area boundary. Public involvement could help clarify the implications of this vehicle track.

MT-020-056 BRIDGE COULEE


MT-020-056
MILES CITY DISTRICT
MT-020-057
LEWIS
PWR
LU
V
S
Biggett Coulee
Creek
Lodge
T17N
T16N
R29E
R30E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-056 - BRIDGE COULEE (TRA 75)

Acreage: 14,654 - Federal (TRA-5,645)

Area Description

This area is located approximately 15 miles north-northeast of Mosby and 2-6 miles east of the Musselshell River.

Access is via Highway 200, then north on either Musselshell Road approximately 16 miles, or on Sand Springs Road approximately 15 miles, then five miles on vehicle trails through private and federal land.

This area contains high ridges in its eastern portions that drain westward down toward the Musselshell. Most of the high areas command vistas extending to the Judith Mountains, some 65 miles to the west.

Proceeding downslope into the area, we found the increasing depth and width of the canyons offered a high degree of isolation. Grassy finger benches slope westward, flanked by deep gullies and canyons. While the area's geology could not be accurately called unique, its weathered sandstone sculptures, shallow caves and exposed white limestone formations do make for striking effects. Small black rocks said to be formed from lava and polished by water transport are found throughout most of the area. A local rancher called them "Indian tear drops".

Ponderosa pine is prevalent throughout the area, primarily on slopes. A moisture gradient is evident, with the eastern ridges wetter and the land becoming progressively drier as elevation drops west toward the Musselshell. A large fire covering approximately 12,000 acres burned segments of five sections in this area in 1973. Regrowth of grass has been thorough in this burned area and ponderosa pine snags remain.

Wildlife in this area is typical of that present in the Musselshell Breaks. Signs of deer and antelope are present. Hawks were sited and many other birds are common. Ponderosa pine show signs of porcupine damage. We found a hog-nose snake and many toads. Fresh coyote scat was found near our camp in the morning.

Human Development

In this area, the sense of man's presence is infrequent. The three small reservoirs in the area are isolated, located down in coulees or amid trees.

The area's two fences have very little impact, with one crossing the southern quarter of the area and the other following the vehicle trail that comprises the southern

boundary. Vehicle tracks are almost non-existent. The only one we found other than the boundary track extended only a quarter of a mile into the area to a reservoir. This is now only a grassy track. Some off-site visual impact is present at that portion of the area from which one can view vehicles traveling on the northern boundary road. Because of the distance involved, however, this is of little or no significance. There is little apparent impact from grazing except around the reservoirs where it is more noticeable and trails are present.

Wilderness Suitability Analysis

The influence of the impacts in the area on natural integrity and apparent naturalness is very low. Opportunities for solitude and primitive recreation are both high.

We camped in this area for three days. During our stay we experienced a strong sense of those values associated with wilderness. The deep canyons with mysterious caves engendered a strong feeling of solitude.

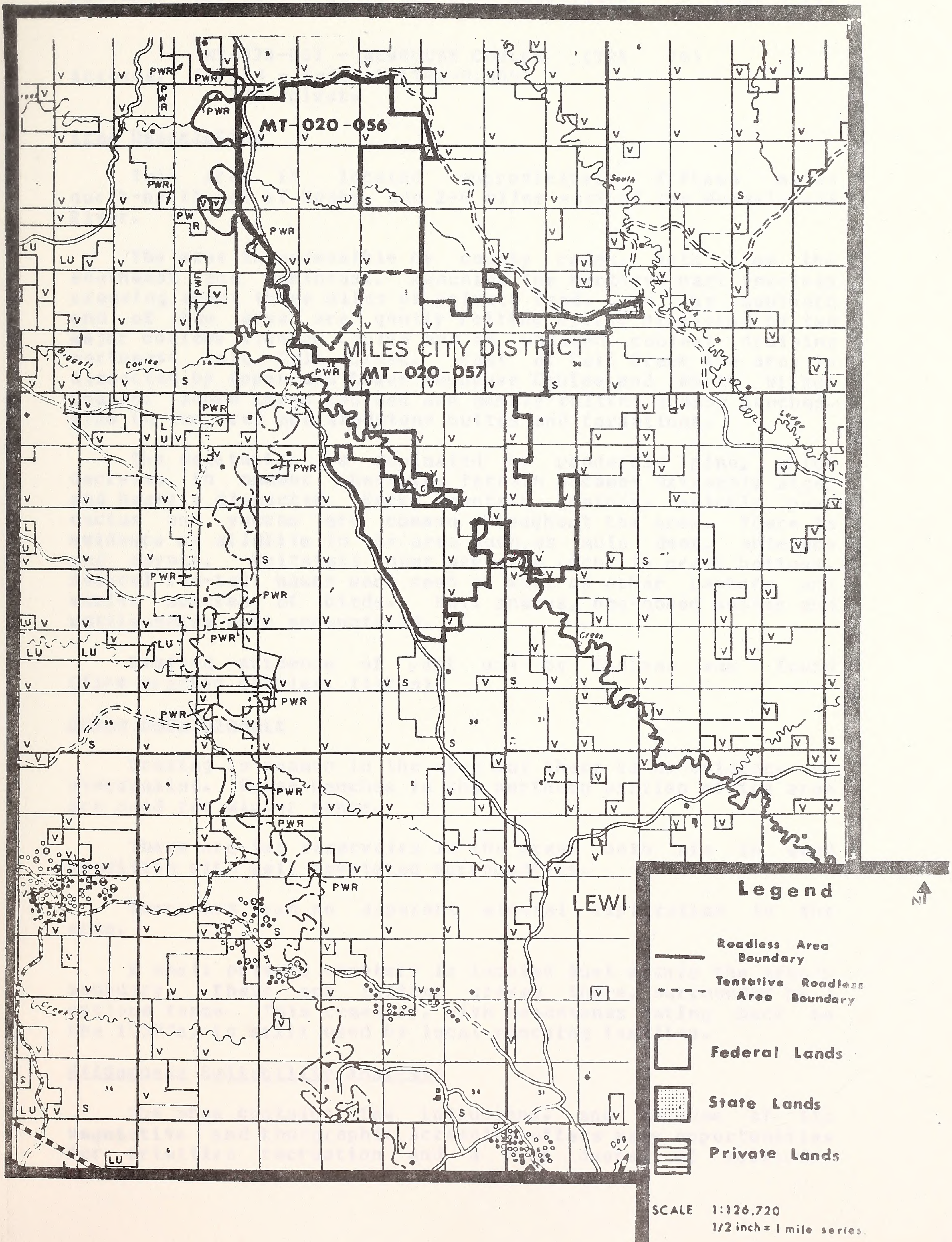
The area invites exploration and has significant scenic qualities. Striking sandstone formations and white limestone cliffs add to the visual resource. Cultural artifacts are present in the area. A hog-nosed snake, a rare species, was found in the area.

Recommendations

Because of its high degree of wilderness attributes and lack of significant human impacts, we recommend this area for further study.

In addition, we suggest joining roadless areas MT-020-056 and MT-060-057. These areas were originally identified as two tentative roadless areas, but during the field inventory they were found to be divided by an old vehicle track. This track was constructed but did not appear to have been maintained for many years. Some sections have revegetated while others are significantly eroded. Combining these two areas would result in a wilderness study area of 14,855 acres.

MT-020-057 NEWHOUSE COULEE


MT-020-056
MILES CITY DISTRICT
MT-020-057
LEWI
PWR
PW R
LU
V
S
South
Biggett Coulee
Creek
Ledge
Dog
Legend
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series
N

MT-020-057 - NEWHOUSE COULEE (TRA 76)

Acreage: 14,654 - Federal (TRA-9,009)
320 Private

Area Description

This area is located approximately fifteen miles north-northeast of Mosby, and 2-6 miles east of the Musselshell River.

The area is accessible by county roads, both from the southwest and northeast. Reaching the northern part involves crossing about three miles of private land. In the southern end of the area are gently rolling hills, dissected by two major coulees (Teepee Coulee and an unnamed coulee) draining northeast into Calf Creek. East of Calf Creek the area is dissected by Upper and Lower Newhouse Coulee and North Wilson Coulee. Above these coulees are gently rolling grassy benches. Also in the area are sandstone buttes and formations.

The vegetation is dominated by ponderosa pine, which decrease in number where the terrain becomes extremely steep and heavily dissected. Rocky Mountain juniper, prickly pear cactus and yuccas are common throughout the area. There is evidence of wildlife in the area such as mule deer, antelope and coyote. Whitetail deer may also occur in creek bottoms. Several red-tail hawks were seen as well as other raptors and varied species of birds. Bull snakes, hog-nosed snakes and rattlesnakes were encountered.

Limited evidence of past use by Indians was found (fire-cracked cobbles, flakes).

Human Developments

Grazing is common in the area but there is no evidence of overgrazing. Grass benches in the northern portion of the area are used for winter range.

There are two reservoirs in the area; both are in good condition with well vegetated surroundings.

There has been no apparent mineral exploration in the area.

A small private cemetery is located just within the area's boundary. There are fifteen graves there, surrounded by a cyclone fence. This cemetery, with headstones dating back to the 1930's, is still used by local ranching families.

Wilderness Suitability Analysis

The area contains few intrusions, and because of its vegetative and topographic screening offers many opportunities for primitive recreation and a high degree of solitude.

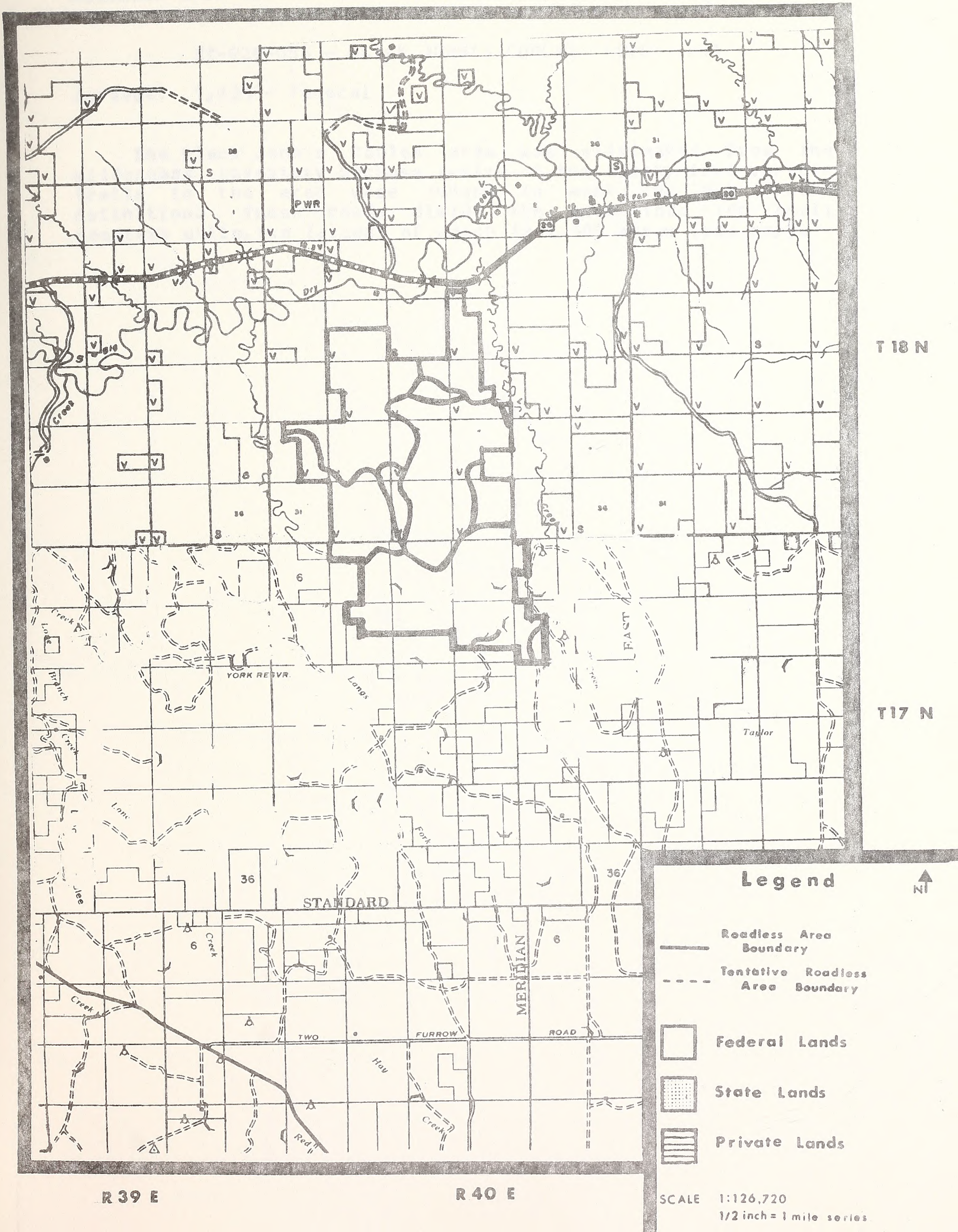
Spectacular vistas of the Judith Mountains to the southwest and the Musselshell River to the west are easily seen from any of the higher points. When looking into the coulees one is overcome with a feeling of adventure and a sense of dynamic, timeless geologic processes. The area offers opportunities for strenuous hiking in the rugged coulees and easy walking along the gentle hills and swales. These differing kinds of opportunities can offer both a sense of challenge and a feeling of serenity.

Recommendations

Because of its high degree of wilderness attributes and lack of significant human impacts, we recommend this area for further study.

In addition, we suggest joining roadless areas Mt-020-056 and MT-060-057. These areas were originally identified as two tentative roadless areas, but during the field inventory they were found to be divided by an old vehicle track. This track was constructed but did not appear to have been maintained for many years. Some sections have revegetated while others are significantly eroded. Combining these two areas would result in a wilderness study area of 14,654 acres.

MT-020-058 BLACK JOHN'S COULEE

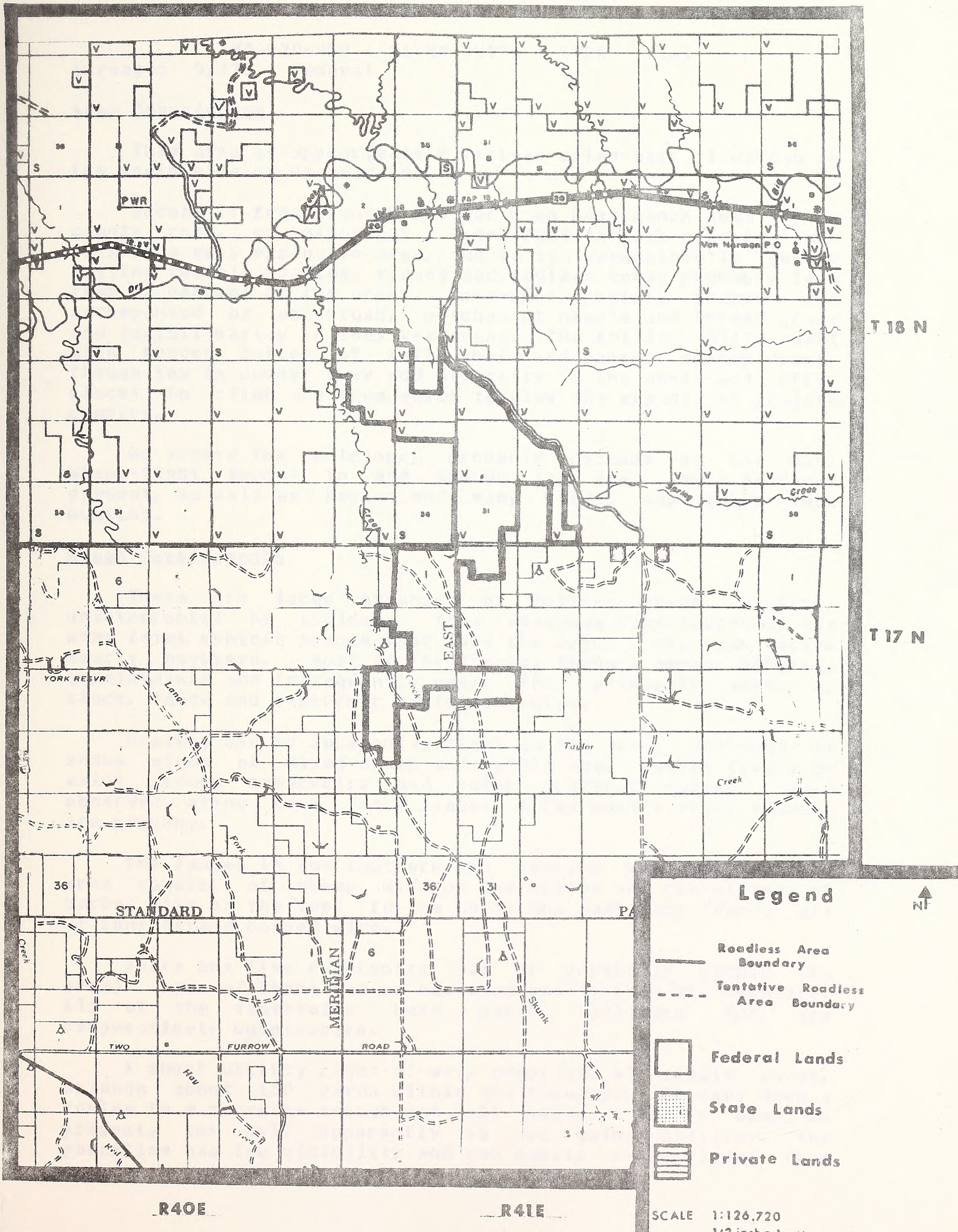

T 18 N
T17 N
R 39 E
R 40 E
PWR
Dry
Creek
YORK RESVR.
Longs
Fork
Lone
Branch
Creek
Coulee
EAST
Taylor
STANDARD
MERIDIAN
TWO FURROW ROAD
Hay Creek
Red
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-058 - BLACK JOHN'S COULEE (TRA 70)

Acreage: 7,024 - Federal

The Black John's Coulee area was eliminated from the wilderness inventory because twelve of the twenty-five vehicle trails in the area were judged to meet the BLM "road" definition. These roads divide the area into ten small roadless units, the largest of which is 2,800 acres (see map).

MT-020-059 CAIRN BUTTE



T 18 N
T 17 N
R40E
R41E
PWR
Von Norman P.O.
FAP 19
YORK RESVR.
Lone
Spring
Creek
Taylor
Creek
Fork
Skunk
Hay
Creek
Red
STANDARD
MERIDIAN
EAST
TWO
FURROW
ROAD
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands

SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-059 - CAIRN BUTTE (TRA 71a)
Acreage: 5,273 - Federal

Area Description

This area is approximately fifteen miles east of Jordan on the south side of Highway 200.

Access if from Highway 200 north on Ross Ranch Road to a county road, or along L.S. Creek Road through private land. This is a very expansive area, due to its predominantly gently rolling terrain (buttes, ridges and coulees cover probably less than 30 percent of the area). Knee-deep prairie grasses are accompanied by sagebrush, patches of needle and thread grass and foxtail barley in low, wet areas. The rolling hills meet with rugged buttes of solid shale and some of spongy crust. Though few in number they add diversity to the area and offer places to climb and from which to view the expanse of prairie country.

We viewed few antelope, probably because of the many sheep-tight fences in and around the area. Mule deer are present, as well as hawks and many birds, especially lark bunting.

Human Developments

There are large expanses of rolling grass prairie, uninterrupted by coulees. This openness contributes to the many faint vehicle tracks that lace the area; one can drive nearly anywhere. Most of the tracks, though, appear unbuilt, unmaintained and infrequently used. They primarily serve as stock, fence and reservoir cruising routes.

Grazing use is apparently light in the area, although it shows signs of mixed sheep and cattle use. Cattle trails do exist around reservoirs and color gradient changes were observed along some fence lines. A few mobile stock troughs are present.

The fences in the southern and western portions of the area consist of sheep wire on the bottom and two strands of barbed wire on the top. In the north and east, the fences are of four strand barbed wire.

There are five reservoirs all or partially within the area; two of these can be excluded easily from the boundary. All of the reservoirs have earth spillways and are comparatively unobtrusive.

A short utility right-of-way, comprised of single poles, extends about 150 yards within the boundary. It runs down a coulee to a concrete trough and well house. As no pump is present, the well apparently is not being utilized. The powerline has low visibility and can easily be excluded from

the area.

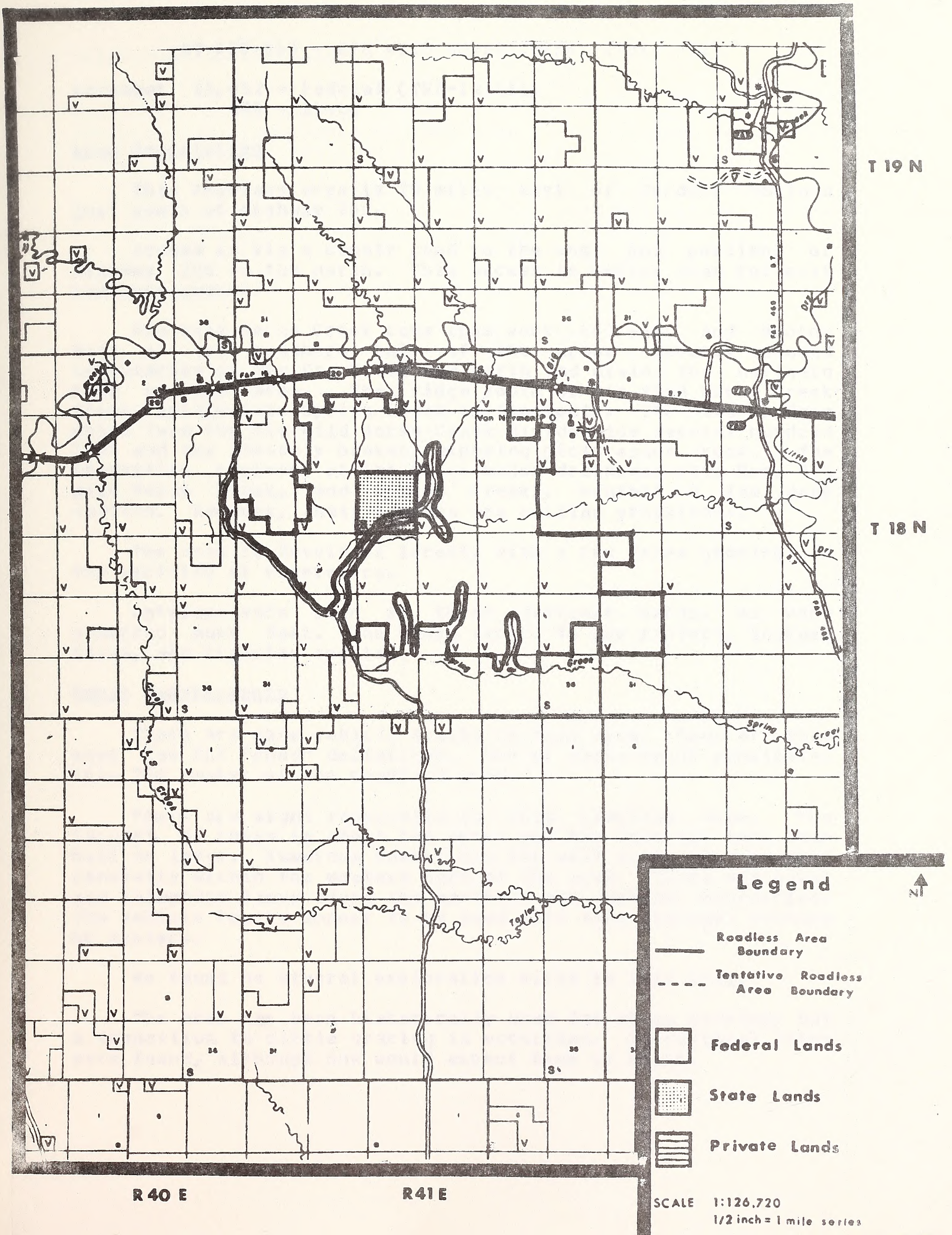
Wilderness Suitability Analysis

This area is very beautiful. It offers some sense of solitude and wildness. It offers an opportunity for limited primitive recreation in the forms of hunting, hiking, wildlife observation, and camping (though there is no water or shade). However, this area is not very large nor does it have an ideal shape for "buffering" from off site impacts. Several sections provide views of agricultural fields, roads and distant ranches. That vehicles can be easily heard along the boundary near the county road compromises values of solitude.

Recommendations

We do not recommend this area for wilderness study.

MT-020-060 BIG WILD HORSE CREEK


T 19 N
T 18 N
R 40 E
R41E
Von Norman P.O.
Big
Little
Dry
Spring Creek
Spring Creek
Taylor
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-060 - BIG WILD HORSE CREEK (TRA 72)

Acreage: 11,052 - Federal (TRA-12,111)
640 - State

Area Description

This roadless area is 20 miles east of Jordan, Montana just south of Highway 200.

Access is via a county road to the west and portions of Highway 200 to the north. This access is better than for most roadless areas.

Big Wild Horse Creek runs from west to east and drains most of the southern half of the area. Several unnamed tributaries of Big Dry Creek run north and drain the northern half of the area. The ridge south of Big Wild Horse Creek drops rapidly into Spring Creek to the south. The two ridges which form the Big Wild Horse Creek divide rise several hundred feet and are severely broken, exposing picturesque rock. The transition regions of the three major drainages (Big Dry, Big Wild Horse Creek, and Spring Creek), exhibit a few deep coulees. However, their bottoms are rolling grasslands.

The area is devoid of forest, with a few trees growing in the vicinity of reservoirs.

Antelope were seen in three distinct herds, as were numerous mule deer. One would expect to see raptors, snakes, foxes, and riparian species.

Human Developments

There are many vehicle trails in this area. Four of them meet the BLM "road" definition. One of these roads penetrates into the center of the roadless area.

There are eight reservoirs in this roadless area. The largest of these is about ten acres and the rest are less than half as large. Numerous powerlines for well pumps are located generally within the western part of the area. There are power and telephone lines along the northern and western boundaries. The vehicle trails appear to be used more than average, perhaps by hunters.

We found no mineral exploration sites in this area.

The area has been historically used for sheep grazing, but a transition to cattle grazing is occurring. No cultural sites were found, although one would expect them to exist.

Wilderness Suitability

Big Wild Horse drainage is generally separated from off-site developments, but it is impacted by on-site development. These developments have a localized effect on natural integrity but they are highly apparent.

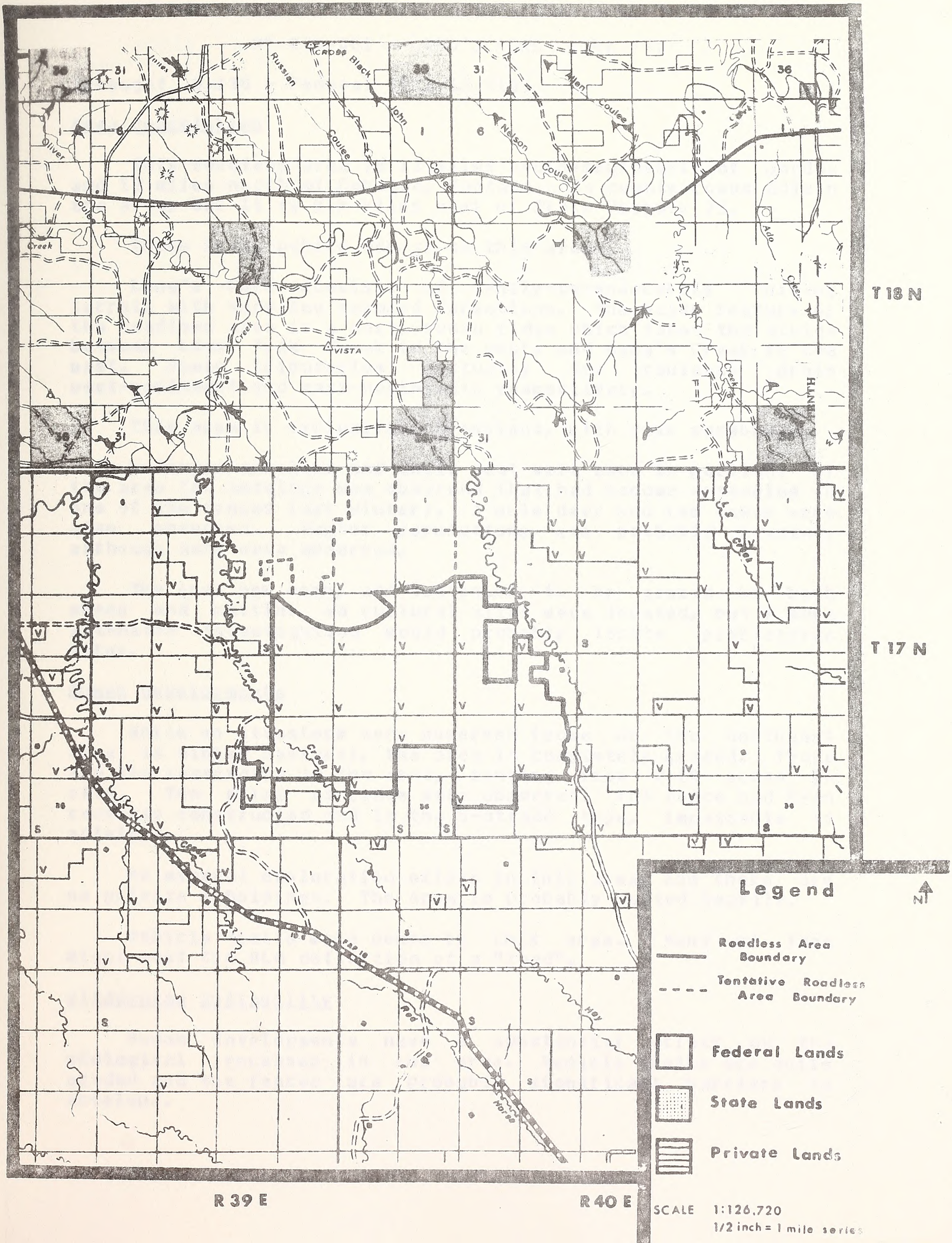
Some of the coulees provide opportunities for solitude, but the homogeneous nature of the physical and vegetative features limits opportunities for primitive forms of recreation.

Recommendations

We do not recommend Big Wild Horse Creek for further wilderness study due to extensive impacts and insignificant wilderness attributes.

Four boundary changes were necessary, creating corridors around the roads found in this area (see map).

MT-020-061 LANG'S FORK


Russian
Black
John
Coulee
Allen
Coulee
Nelson
Coulee
Oliver
Creek
Big
Langs
Creek
VISTA
CROSS
Sand
Ado
Creek
Red
Hay
Horse
FAP 18
T 18 N
T 17 N
R 39 E
R 40 E
Legend
N
Roadless Area Boundary
Tentative Roadless Area Boundary
Federal Lands
State Lands
Private Lands
SCALE 1:126,720
1/2 inch = 1 mile series

MT-020-061 - LANG'S FORK (TRA 78)

Acreage: 8,330 - Federal (TRA 10,813)

Area Description

This roadless area is 12 miles south-southeast of Jordan and 12 miles north of Cohagen, Montana. No county roads adjoin the area, but it is six miles east of State Highway 22.

There is no public access to this area.

Lang's Fork consists of gently-to-moderately rolling terrain with very few exposed formations. The major feature of the roadless area is a north-south ridge which forms the divide between Lone Tree Creek to the west, and Lang's Creek to the east. Their tributaries (actually dry coulees) drain west-northwest and east-northeast, respectively.

This area is exclusively grassland, with some sagebrush.

Numerous antelope and their scat were seen in portions of the area (an antelope was observed that had become entangled in one of the fences last winter). A mule deer and two fawns were also observed. Raptor populations are probably present, although none were observed.

The area has been, and continues to be grazed by both sheep and cattle. No cultural sites were located, but a more intensive investigation would probably locate prehistoric sites.

Human Developments

While no livestock were observed (some of the northeast area is winter pasture), the area is completely grazed. There are ten reservoirs in the area, ranging from 2-10 acres in size. Ten miles of fence were observed. The fence had been recently constructed and is the 5-strand type, impassable to antelope.

No mineral exploration exists in this area, and there are no private inholdings. The area is probably hunted heavily.

Vehicle trails were dense in this area. Many of them might meet the BLM definition of a "road".

Wilderness Suitability

Human developments have a substantial effect on the ecological processes in the area. Vehicle trails are quite eroded and the fences are probably significant barriers to antelope.

While one can achieve feelings of solitude and opportunities for primitive recreation in some portions of the area, on the whole this area has low suitability.

Recommendations

Because of the insignificant wilderness attributes we do not recommend further wilderness study for the Lang's Fork area.

A road which meets the BLM definition was found in the area eliminating 2,483 acres of the northern portion of this area from the wilderness inventory (see map).

CHAPTER 4

INVENTORY RESULTS AND RECOMMENDATIONS

Eighty tentative roadless areas were identified by Phil Gezon (Lewistown) and Chris Roholt (Miles City). During the field season, 61 of these areas were inventoried. This inventory consisted of two basic parts, a road inventory and an assessment of wilderness characteristics.

The road inventory resulted in eliminating six of the 61 areas from further consideration because roads (meeting the BLM definition) dissected the areas into parcels less than 5,000 acres (See Table 4.1). The road inventory phase also resulted in boundary modifications on numerous areas and in the splitting of one tentative roadless area into two smaller roadless areas. In several cases areas were joined because "roads" thought to separate them were determined not to be roads.

Each of the 55 roadless areas remaining after the road inventory was assessed for its wilderness characteristics. A recommendation for or against wilderness study was made by the field teams while in each area, and a rationale was developed for each decision. In addition, Wilderness Attribute Analysis Method (WAAM) scores were determined for each of the four attributes measured and for any supplemental attributes present (see Appendix for a complete description of WAAM). Based on field recommendations, 22 of the 55 roadless areas inventoried were recommended as Wilderness Study Areas and 33 were recommended to be released from further wilderness study.

Table 4.2 presents the WAAM ratings for the 55 areas inventoried, including individual attribute scores, a total of all four attribute scores, and a total of the first two (1. natural integrity and 2. apparent naturalness) plus the highest of: 3. opportunity for solitude, or 4. opportunity for primitive recreation.

Since the BLM Wilderness Inventory Handbook was not yet available prior to this inventory, and since it does not delineate how wilderness characteristics are

TABLE 4.1

ROADLESS AREAS ELIMINATED FROM WILDERNESS INVENTORY

Area Number	Area Name	Reasons for Elimination
MT-060-025	Brazil Creek	high-standard road bisects area, presence of Federal Bentonite Company processing plant and mineral claims
MT-060-028	Lena Coulee	two roads dissect area, unroaded portion of this area combined with Square Creek (MT-060-027)
MT-060-033	Pines	
MT-060-033	Pines	two roads divide area into four units, each less than 5,000 acres
MT-020-035	Hungry Creek	two roads divide area into four units, each less than 5,000 acres
MT-020-046	Trumbo Ranch	two roads divide area into three units, each less than 5,000 acres
MT-020-058	Black John's Coulee	twelve roads divide area into ten units, each less than 5,000 acres

TABLE 4.2

ATTRIBUTE SCORES AND RECOMMENDATIONS FOR AREAS INVENTORIED FOR WILDERNESS CHARACTERISICS

Area Number	Area Name	Natural Integrity (1-7)	Apparent Naturalness (1-7)	Solitude (1-7)	Primitive Recreation (1-7)	Composite A* (1-28)	Composite B* (1-28)	Scenic	Ecological	Geological	Endangered Species	Cultural Features	Wilderness Study Recommendation
MT-060-001	Chimney Bend	6	5	5	4	20	16	3	?	2	?	?	YES
MT-060-002	Ervin Ridge	6	5	5	4	20	16	3	A	2	?	?	YES
MT-060-003	Dog Creek	6	4	5	5	20	15	3	2	3	?	P	YES
MT-060-004	Woodhawk Creek	6	5	5	5	21	16	4	4	3	?	P	YES
MT-060-005	Bullwacker	5	5	6	4	20	16	3	2	3	?	?	YES
MT-060-006	Bull Creek	7	6	6	6	25	19	4	A	4	?	P	YES
MT-060-007	Antelope Creek	5	6	5	5	21	16	4	?	?	?	P	YES
MT-060-008	Siparyann Creek	5	4	2	2	13	11	2	A	A	?	?	NO
MT-060-009	Little Rockies	6	5	5	5	21	16	3	?	?	?	?	YES
MT-060-010	Bitter Creek	5	6	5	4	20	16	3	2	2	?	P	YES
MT-060-011	Dry Lake	5	3	3	3	14	11	2	A	A	?	?	NO
MT-060-012	Indian Lake	6	4	4	4	18	14	3	3	A	?	P	NO
MT-060-013	Beauchamp Creek	4	3	3	3	13	10	2	A	A	A	P	NO
MT-060-014	Second Creek	5	3	2	3	13	11	2	A	A	?	?	NO
MT-060-015	Dry Fork	4	4	3	2	13	11	2	A	A	?	P	NO
MT-060-016	Sage Creek	6	5	4	4	19	15	3	?	A	?	?	YES
MT-060-017	Burnt Lodge	6	5	5	5	21	16	4	5	4	?	P	YES
MT-060-018	Carptenter Creek	6	5	4	3	18	15	1	A	A	?	P	NO
MT-060-019	Timber Creek	6	5	3	2	16	14	1	A	A	?	?	NO
MT-060-020	Grant Coulee	7	5	4	2	18	16	1	A	A	?	P	NO
MT-060-021	Marsh Hawk Hills	6	5	5	3	19	16	3	2	1	?	?	YES
MT-060-022	Dog Creek North	6	4	3	3	16	13	3	?	A	?	?	NO
MT-060-023	Sage Hen Creek	6	4	3	3	16	13	2	?	A	?	P	NO
MT-060-024	Lone Tree	7	4	5	3	19	16	2	A	A	?	P	NO
MT-060-026	South Fork Willow Creek	6	4	4	5	19	15	3	A	A	?	P	YES
MT-060-027	Square Creek	6	5	4	4	19	15	3	A	A	?	P	YES
MT-060-029	Duck Creek	5	5	4	5	19	15	3	A	A	?	?	YES
MT-060-030	Roosevelt Coulee	6	4	3	3	16	13	1	A	A	?	?	NO
MT-060-031	Beaver Creek	5	3	4	3	15	12	1	A	A	?	?	NO
MT-060-032	Bomber Coulee	5	4	3	2	14	12	2	3	A	?	?	NO
MT-020-034	Sand Arroyo	5	4	3	3	15	12	3	?	2	?	?	NO
MT-020-036	Sage Hen-Rock Creek Divide	4	3	2	2	11	9	1	?	A	A	?	NO
MT-020-037	McGuire Creek	4	4	4	3	15	12	1	?	A	?	?	NO
MT-020-038	Dry Creek-Timber Creek Divide	5	4	4	3	16	13	3	?	?	?	?	YES
MT-020-039	Big Dry Arm	4	4	4	3	15	12	2	?	A	?	?	NO
MT-020-040	Nelson Creek	4	4	2	3	14	11	1	A	1	A	?	NO
MT-020-041	Ash Creek	4	3	2	3	12	10	1	?	1	?	?	NO
MT-020-042	Snap Ash	4	5	4	3	16	13	2	A	A	?	?	NO
MT-020-043	East Bridge Coulee	5	4	3	2	14	12	3	?	?	?	?	NO
MT-020-044	Woody Flat	5	4	5	3	17	14	3	A	A	?	?	YES
MT-020-045	Hagen Gap	4	2	3	3	12	9	2	?	A	?	?	NO
MT-020-047	Maloney Hill	6	3	4	3	16	13	3	A	3	?	P	NO
MT-020-048	Crooked Creek	5	5	3	3	16	13	2	?	A	?	?	NO
MT-020-049	South Fork Little Squaw Creek	7	5	6	4	22	18	4	?	3	?	P	YES
MT-020-050	North Squaw Creek	6	3	5	4	18	14	3	?	3	?	P	YES
MT-020-051	Lodgepole Creek	4	4	4	4	16	12	2	A	A	?	?	NO
MT-020-052	Germaine Coulee	5	4	4	4	17	13	5	?	3	?	P	YES
MT-020-053	Jack Lane Coulee	5	4	4	4	17	13	3	A	3	?	?	NO
MT-020-054	Squaw Creek	5	5	5	4	19	15	2	A	A	?	?	NO
MT-020-055	Seven Blackfoot	6	6	7	6	25	19	5	?	3	?	?	YES
MT-020-056	Bridge Coulee	6	6	5	5	22	17	3	?	3	P	P	YES
MT-020-057	Newhouse Coulee	7	3	5	4	19	15	3	A	2	?	P	YES
MT-020-059	Cairn Butte	6	5	4	3	18	15	1	A	?	?	P	NO
MT-020-060	Big Wild Horse Creek	4	3	4	3	14	11	1	A	2	A	?	NO
MT-020-061	Lang's Fork	4	3	3	2	12	10	1	A	A	?	?	NO

*Composite A: Natural Integrity + Apparent Naturalness + Solitude + Primitive Recreation

*Composite B: Natural Integrity + Apparent Naturalness + the highest score of either Solitude or Primitive Recreation

Supplemental Attributes:

Scenic, Ecologic, Geologic: Scale of 1-5
A: Absent
?: Unknown

Endangered Species, Cultural: P: Present
A: Absent
?: Unknown

to be measured, we feel the presentation of individual scores (Table 4.2) goes beyond what is called for in the Handbook and allows the user of this information to look at individual attribute scores as well as various combinations.

In developing WARS, the Forest Service (Stankey, et.al., 1977) used one attribute for "natural integrity" and another called "apparent naturalness", whereas the BLM Wilderness Inventory Handbook uses only one characteristic, called "naturalness." We believe that Section 2(c) of the Wilderness Act calls for both, one being the ecological concept of "natural conditions" with "land retaining its primeval character and influence." The other is the concept of the appearance to a visitor where an area "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable" (emphasis added). The latter concept more closely fits the definition used in the BLM Handbook for "naturalness." As can be seen in Table 4.2 and Figures 4.1 and 4.2, the first two attributes were often quite different, with apparent naturalness usually being lower.

This is an indication that many human developments in various areas have had little ecological impact but are nevertheless readily apparent to visitors (e.g., windmills, fences, etc).

In this study, opportunity for solitude, attribute 3, and opportunity for primitive recreation, attribute 4, both proved to be useful discriminators of wilderness values, with solitude exhibiting a 6-point spread in values. Although solitude values (Figure 4.3) averaged slightly higher than primitive recreation (Figure 4.4), the two scores were often quite different for individual areas (see Table 4.2).

Although Section 2(c) of the Wilderness Act states that wilderness "has outstanding opportunities for solitude or a primitive and unconfined type of recreation" (emphasis added), subsequent legislation (Endangered American Wilderness Act, 1978, and Eastern Wilderness Act, 1976) indicates that Congress feels both are important, and some criteria--like challenge--are specifically mentioned. Both characteristics are present in all the areas studied and whether or not the opportunities are outstanding is a matter of degree. The BLM Wilderness Inventory Handbook maintains the view that an area "only has to possess one or the other," so Composite B in Table 4.2 utilizes the higher of the two values summed with attributes 1 and 2.

We feel that all four attributes were useful measures of wilderness values and can be combined to give a total rating for each area that is useful for comparing areas within regions (see Composite A in Table 4.2).

Figure 4.1-Distribution of WAAM Ratings of Natural Integrity for 55 Inventoried Roadless Areas.

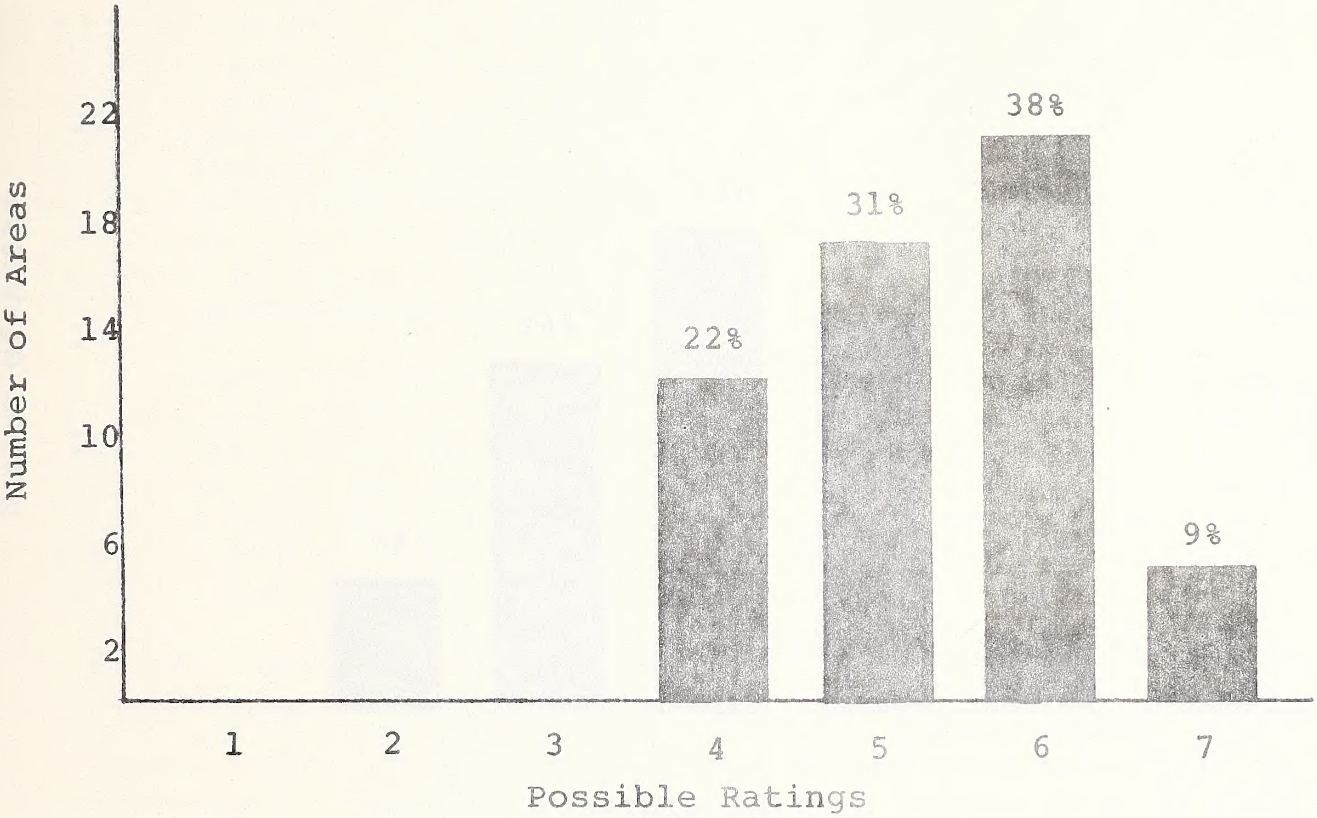


Figure 4.2-Distribution of WAAM Ratings of Apparent Naturalness for 55 Inventoried Roadless Areas.

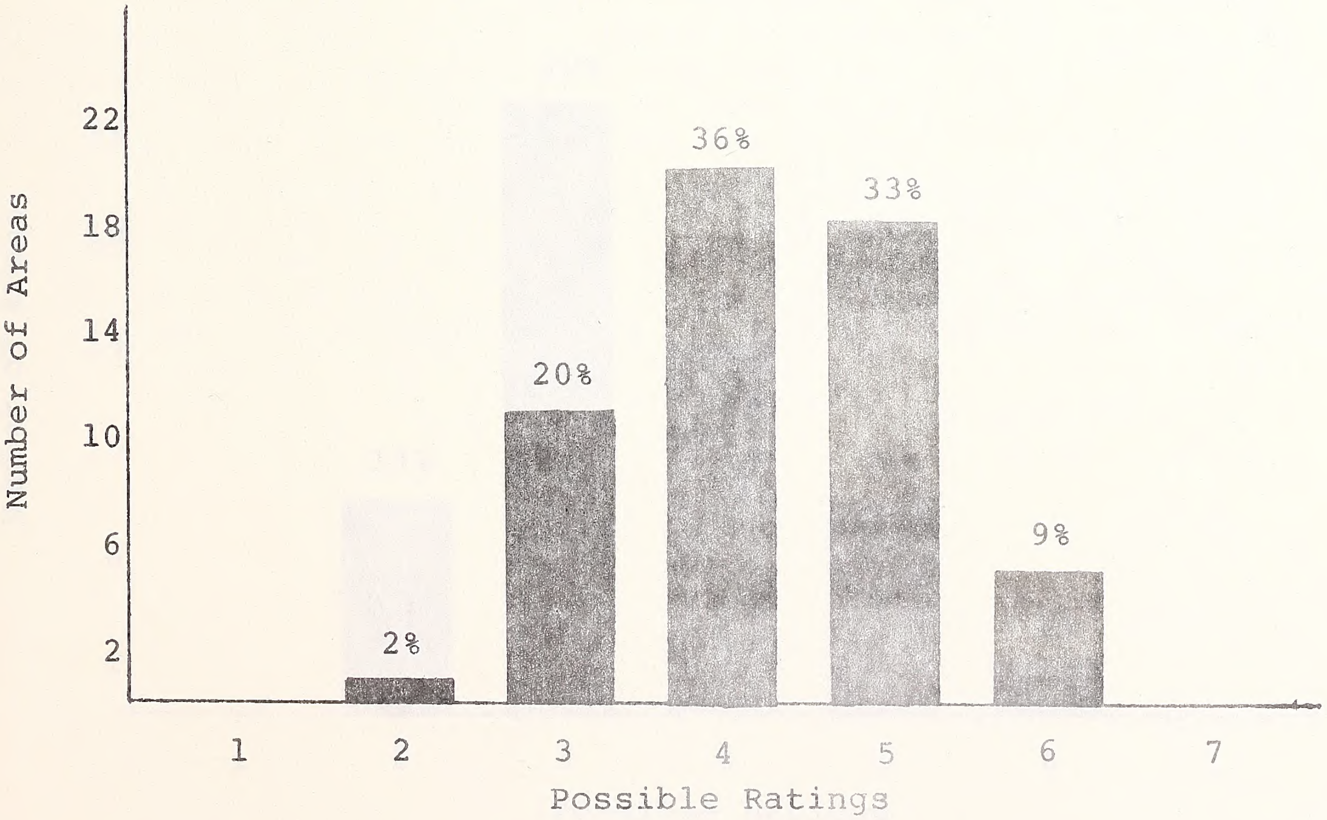


Figure 4.3-Distribution of WAAM Ratings of Opportunity for Solitude for 55 Inventoried Roadless Areas.

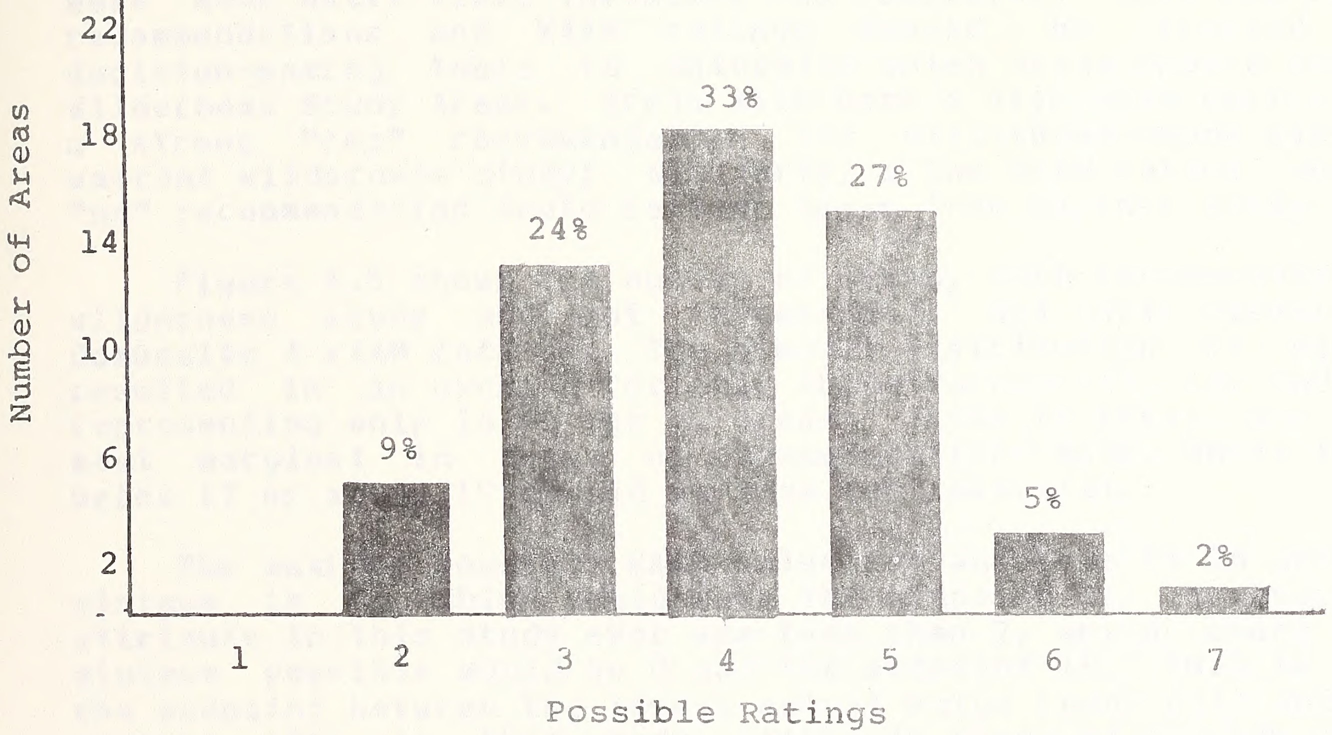
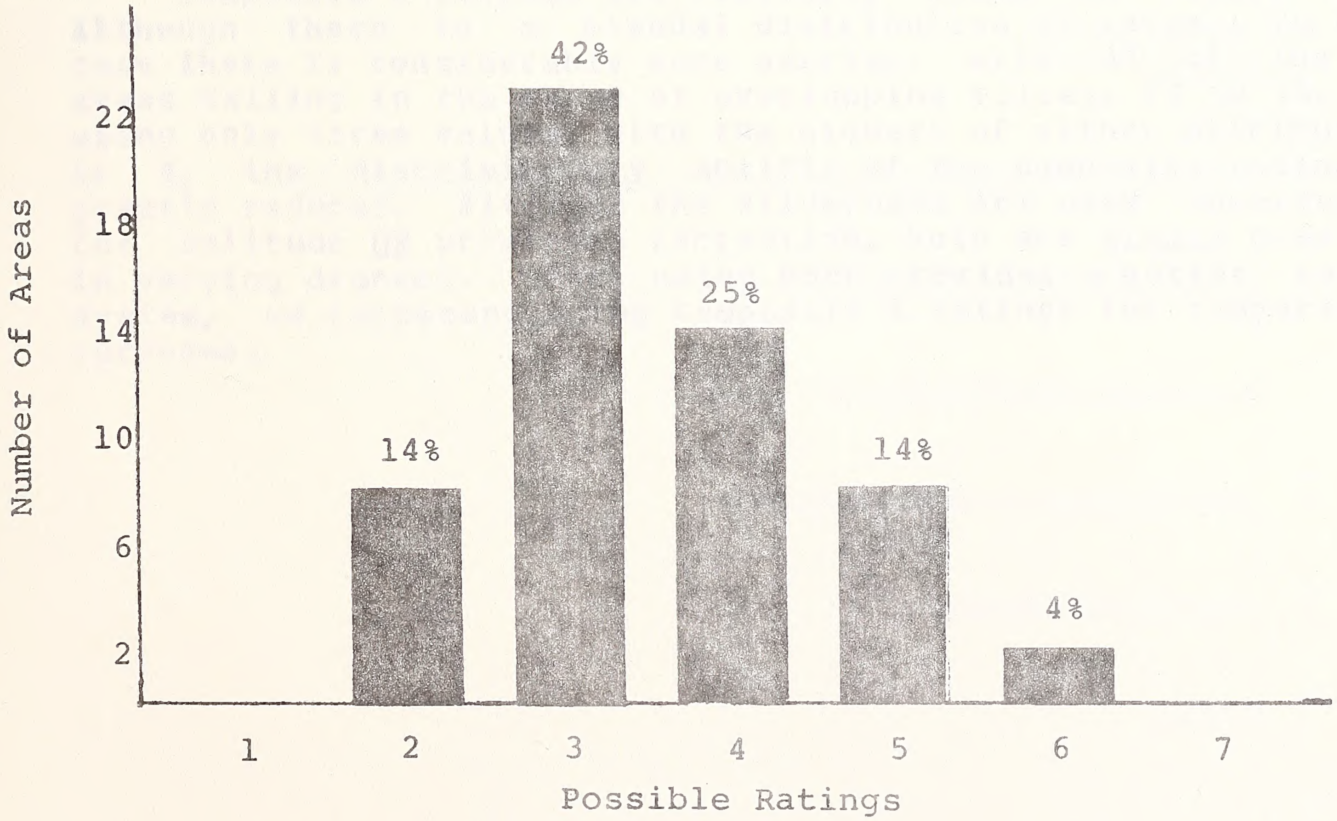


Figure 4.4-Distribution of WAAM Ratings of Opportunity for Primitive Recreation for 55 Inventoried Roadless Areas.



As indicated at the beginning of this chapter, field recommendations and individual WAAM ratings were made by study teams while in each area, but no total or composite ratings were made until field inventory was completed. Both the field recommendations and WAAM ratings should be treated as decision-making tools to determine which areas should become Wilderness Study Areas. Areas with both a high WAAM rating and a strong "yes" recommendation for wilderness study clearly warrant wilderness study; similarly, a low WAAM rating and a "no" recommendation would release areas from further study.

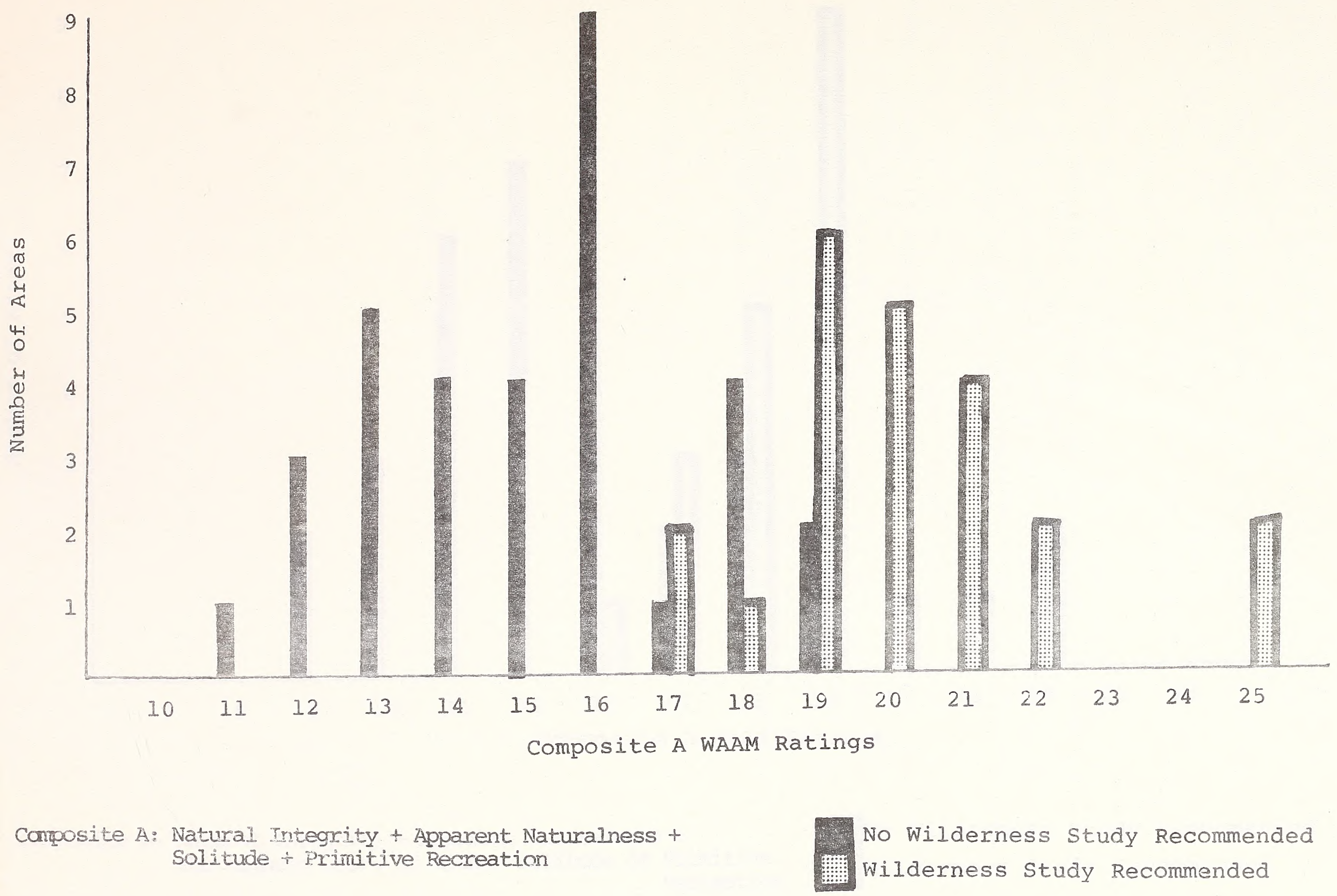
Figure 4.5 shows the number of areas, both recommended for wilderness study and not recommended, and their associated Composite A WAAM ratings. The bimodal distribution of values resulted in an overlap for only three values--17, 18, and 19, representing only 16 of the 55 areas. These 16 then, are the most marginal in terms of recommendations made, while those below 17 or above 19 should be less controversial.

The maximum possible WAAM value for any area is 28 and the minimum is 4, which would make the midpoint 16. However, no attribute in this study ever was less than 2, which means the minimum possible would be 8 and the midpoint 18. This is also the midpoint between the lowest actual value found (11) and the highest (25) in this study. Although there is overlap at 18 plus or minus one, we feel the composite WAAM ratings are sensitive to the wilderness values of an area and are a valuable tool in the wilderness inventory.

Composite B ratings are similarly shown in Figure 4.6. Although there is a bimodal distribution of values, in this case there is considerably more overlap, with 33 of the 55 areas falling in the range of overlapping values, 13 to 16. By using only three values, with the highest of either attribute 3 or 4, the discriminatory ability of the composite rating is greatly reduced. Although the Wilderness Act uses opportunity for solitude OR primitive recreation, both are always present, in varying degrees. Since using both provides a better rating system, we recommend using Composite A ratings for comparative purposes.

FIGURE 4.5

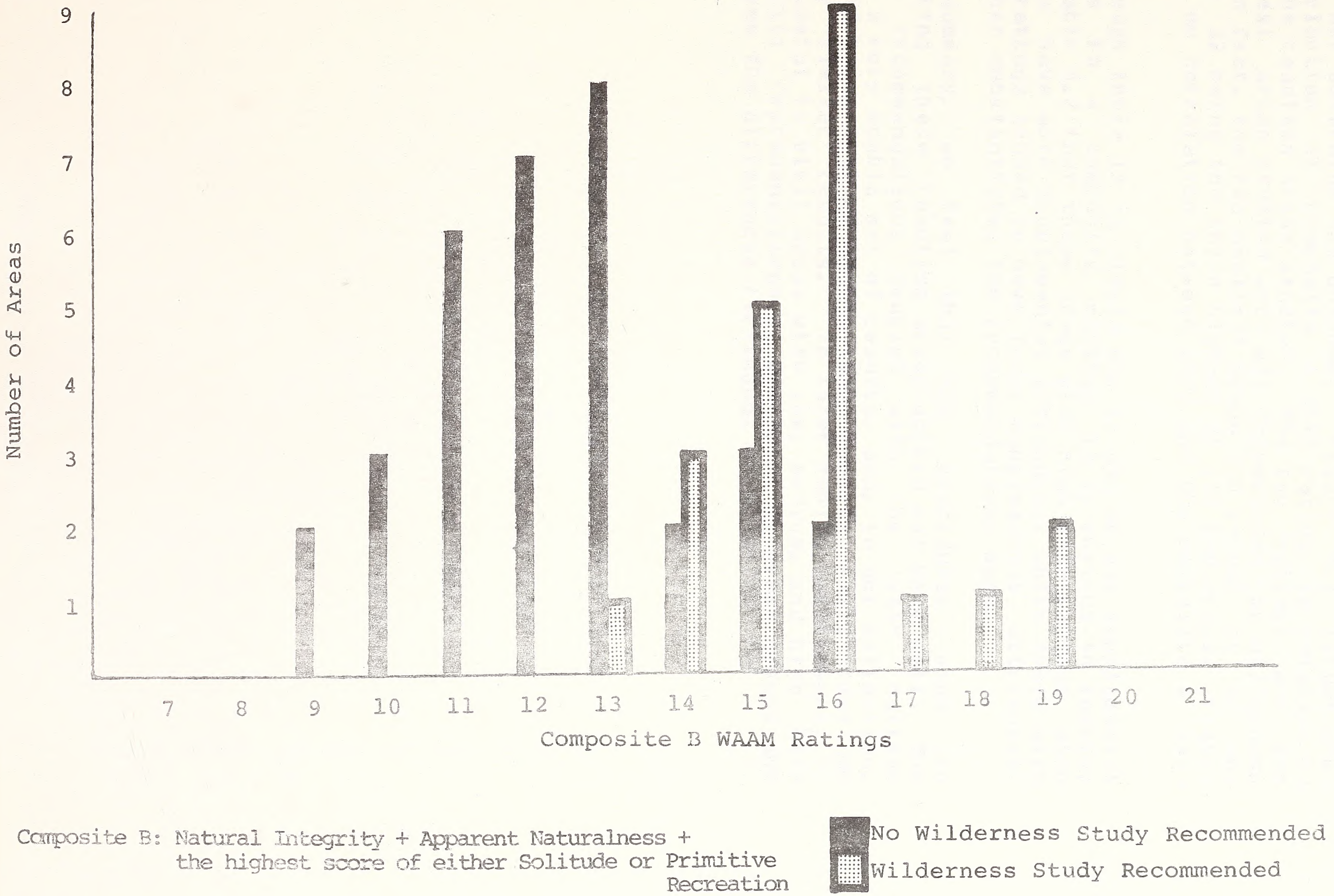
Figure4.5-Distribution of Composite A WAAM Ratings and Recommendations for the 55 Inventoried Roadless Areas.



Composite A: Natural Integrity + Apparent Naturalness + Solitude + Primitive Recreation

FIGURE 4.6

Figure 4.6-Distribution of Composite B WAAM Ratings and Recommendations for the 55 Inventoried Roadless Areas.



Composite B: Natural Integrity + Apparent Naturalness + the highest score of either Solitude or Primitive Recreation

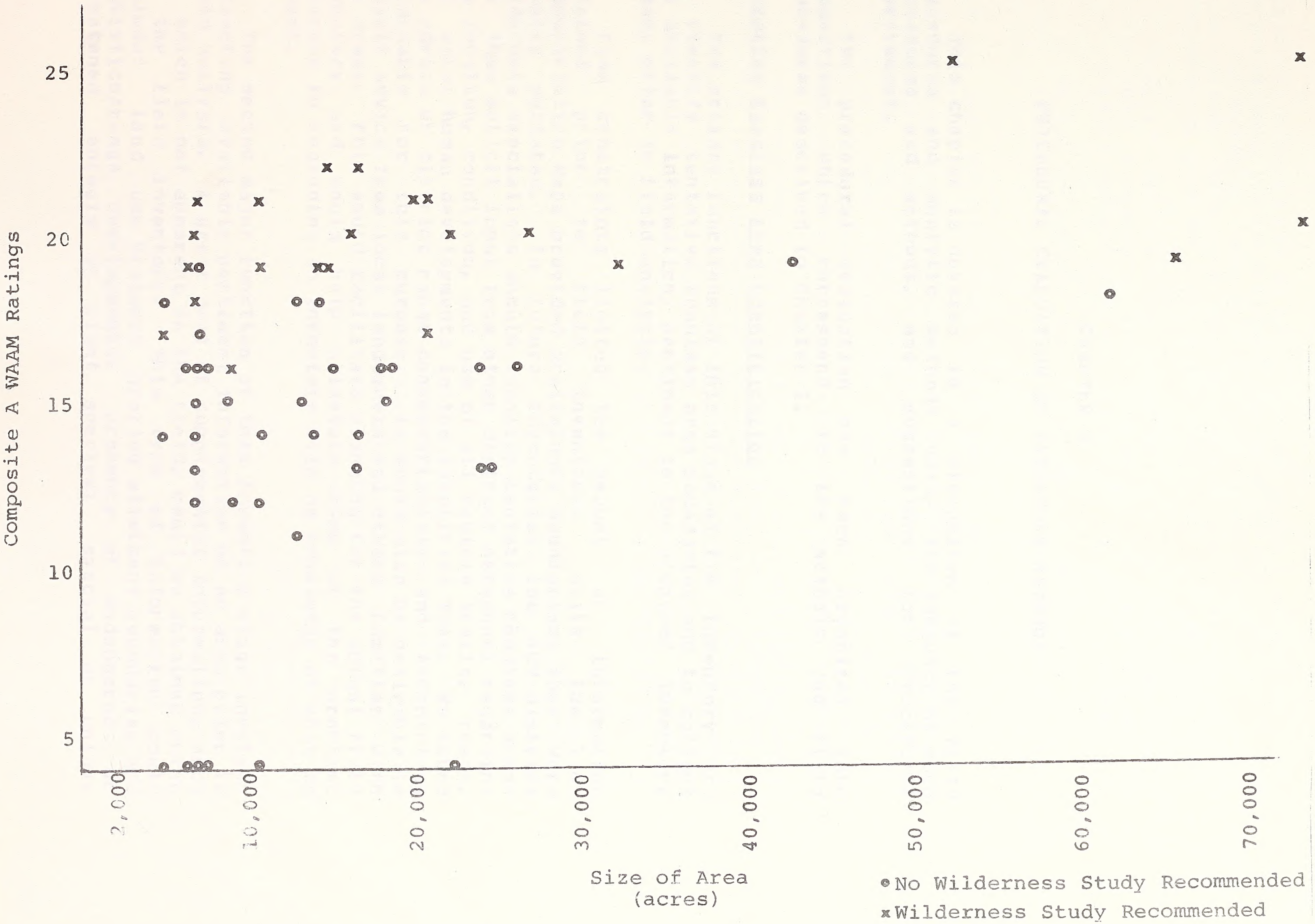
One problem posed by some wilderness rating systems in the past has been a strong bias in favor of larger- sized areas. Although size does have an influence on some wilderness attributes, e.g. opportunity for solitude, critics argue that it should not determine the outcome. Figure 4.7 illustrates the distribution of Composite A WAAM ratings in relation to size of the roadless areas studied. The two smallest and the two largest areas studied were all recommended for wilderness study. In fact, the two smallest areas had values of 21 and 22, with 22 being the third highest of all the areas. Figure 4.7 shows no correlation between size and the composite A WAAM rating.

Although there is no simple way to add or use supplemental attributes in a composite rating, it is obvious in looking through Table 4.2 that those areas with high WAAM ratings also tended to have more supplemental attributes, while those with low WAAM ratings tended to have fewer supplemental attributes. This further substantiates the recommendations made.

In summary, we feel that the procedures used in investigating these roadless areas worked out very well. The narrative recommendations coupled with the WAAM ratings provides a very usable set of results, and, in our estimation, other field teams trained in the same fashion would come up with very similar results. In later public involvement, it would be useful to visit areas with low, medium, and high WAAM ratings with representatives of different interest groups and let them see the differences firsthand.

FIGURE 4.7

Figure 4.7-Distribution of Composite A WAAM Ratings and Recommendations Compared to Area Size.



CHAPTER 5

PROCEDURAL EVALUATION OF INVENTORY METHODS

This chapter is devoted to a discussion of the field procedures and analytic methods used, the adequacy of such procedures and methods, and suggestions for procedural improvement.

The procedural evaluation has been organized into subsections which correspond to the methods and field procedures described in Chapter 2.

Tentative Roadless Area Identification

Two primary functions of this stage of the inventory are to identify tentative roadless area boundaries and to collect any available information, pertinent to the proposed inventory areas, prior to field analysis.

Time constraints limited the amount of information obtained prior to field inventory. While the 1968 Transportation Maps provided preliminary boundaries, they were usually outdated. In future inventories the BLM district wilderness specialists should identify tentative roadless areas and then solicit input from other district personnel regarding the location, condition, and use of all vehicle trails, roads, and other human developments in the identified TRAs. We found the advice of district range conservationists and technicians invaluable for this purpose. It would also be desirable to solicit advice from local landowners and others familiar with the areas. This would facilitate planning for the actual field inventory and would help alleviate some of the problems inherent in beginning an inventory with no knowledge of what to expect.

The second major function of this inventory stage involves collecting available pertinent information on an area prior to field analysis. A great deal of supplemental information, much of which is not apparent in the field, could be obtained prior to the field inventory. This type of information could include: land use history; grazing allotment boundaries and statistics; range developments; presence of endangered or threatened animals or plant species; special or unique

features; mineral claims and leases; land treatments and manipulations, right-of-ways, easements, etc. Much 04900 of this information could be obtained through informal conversations with BLM and other agency personnel and private landowners as well as through file and library research.

Obtaining this information prior to field analysis would considerably streamline the inventory process (perhaps as much as 15 percent) and improve the quality of field judgments.

We do not recommend that information obtained in this manner supersede the necessity for on-the-ground field inventory.

Roadless Area Physical Description Narrative

We found the method utilized for developing a physical description narrative to be adequate. It would be beneficial, however, to supplement these narratives with additional information that cannot be obtained in the field. Pre-inventory research would facilitate this process and in some cases post-field inventory research also would be useful.

It was extremely valuable to have a standardized narrative checklist. This insured both consistency and reliability and facilitated the presentation of the inventory results. It would be helpful for future inventory teams to maintain flora and fauna species checklists with both common names and scientific names to provide accuracy and alleviate misunderstandings in vegetation and wildlife descriptions.

As stated before, the criteria used in this study to define a "road" were based on the Draft Wilderness Review Procedures issued in February, 1978. Because the criteria were subject to change, we developed an inventory system that could be consistently applied by all field personnel.

At the time of this writing, the Final Wilderness Inventory Procedures have been published with the road definition slightly altered. Although the criteria are now final, the definitions remain somewhat vague and subject to different interpretations when applied in the field. Therefore, we recommend that future inventories of this nature continue to utilize a consistent inventory method to facilitate public involvement. 11800 It took a considerable amount of discussion within the inventory teams to formulate a consistent working definition of the criteria used for judging vehicle trail and road conditions. The inventory form (p.) we used only required a check be made in one of three road status columns to indicate if a vehicle trail was built, maintained, or used. This was followed by supplemental comments. We recommend a further refinement of this system using a more detailed checklist prepared with the assistance of engineers.

Regarding field implementation we have a few suggestions for field teams in future roadless area inventories. The first is to develop a pre-inventory strategy. Utilizing all that is known about vehicle trails in an area, priorities can be determined with the vehicle trails showing the greatest probability of meeting the "road" definition being inventoried first. Thus, if a road is found to split a TRA into smaller units, this will be determined at the outset of the inventory to alleviate duplication or fragmentation of the remainder of the inventory process in that area.

We also suggest that working teams should consist of two people. We found this to be an ideal number. One team member drove, while the other consistently tracked the route, noting mileage readings, vehicle track conditions, and maintaining vehicle trail and photo logs. Initially, we experimented with teams of three but found this inefficient. Occasionally, one person worked alone. We would discourage this in future inventories, however, due to safety considerations and the inability to collectively discuss and evaluate an area's wilderness suitability

Approximately 394 person-days of field work were required to inventory the 61 roadless areas, an average of 6.45 person-days per area. Since teams of two were utilized, this averaged a team visit of 3.22 days in each area. The range of time required to inventory each area varied, however, depending on the size and type of terrain as well as weather conditions.

Photo Documentation

We found the photo documentation method used in this inventory to be adequate. It was advantageous to use separate inventory forms for both vehicle trails and photographs. Although there is some duplication with this method (i.e., a photo taken of a vehicle track was noted on both forms), we believe it will be easier for the public to interpret the data on this form.

As stated earlier, we used both Kodak Instamatic cameras and 35mm cameras. Although Kodaks are inexpensive and require little or no maintenance, the quality of slides and prints is lower than those taken with 35mm cameras.

Approximately half of the photos we took were slides, the other half prints. There are advantages and disadvantages to both methods. For documentation photos of vehicle trails and human developments prints are probably adequate. They can be easily stored and retrieved in case files and do not require additional equipment for viewing. Print film has a higher exposure latitude; this may be a factor to consider when cheap cameras are used by inexperienced photographers.

Slides, however, when projected on a screen, capture more detail (in many cases a faint vehicle trail would be unnoticeable on a print but would be apparent on a slide). Slides can also be incorporated into case files using transparent display sheets, and can be viewed without a projector or screen using a small portable viewing device. In addition, much better results are obtained by making prints from slides than the opposite.

For photographs intended for public meetings or workshops, slides are obviously more functional than prints.

Wilderness Attribute Analysis Method

We have several suggestions for procedural improvement of the Wilderness Attribute Analysis Method (WAAM), but would first like to compare this method to the intensive inventory procedures outlined in the Wilderness Inventory Handbook (USDI-BLM. September 27, 1978, pp. 11-15).

Both methods document the essential attributes of naturalness, opportunities for solitude, outstanding opportunities for primitive or unconfined recreation and supplemental attributes, but the manner in which the data are quantified and presented is quite different in each.

While WAAM requires a rating for each attribute on a scale of 1 to 7, based on specifically defined criteria and supplemented with evaluators comments, the Wilderness Inventory Handbook requires an either-or, yes or no answer, supplemented with a narrative, and does not include specifically defined criteria. The Handbook procedures do not allow any flexibility in comparing or rating the relative wilderness attributes between areas.

There are two key factors to keep in mind when judging the merits of these two methods: validity and reliability.

Validity is the extent to which each method actually reflects what it is purported to measure. In theory, the Wilderness Inventory Handbook procedures have greater validity than WAAM because the qualitative definitions of each attribute are couched in the statutory language of the Wilderness Act. The WAAM system, on the other hand, presents specific qualitative and quantitative definitions for each attribute based on a professional interpretation of congressional intent.

Reliability is the degree to which judgments or ratings by independent field inventory personnel are consistent.

We believe the reliability of Wilderness Inventory Handbook procedures will be somewhat limited in application in the field. Its broad definitions and simple yes or no ratings require inventory personnel to use their own interpretation of the Wilderness Act in applying this method. Thus, the

reliability of this method will be directly related to the level of awareness and understanding of congressional intent held by each field team.

The WAAM system provides a greater degree of reliability because it specifically defines the criteria to be used by field evaluators in judging the relative presence of each attribute. While some criteria call for "best guess" estimates, there is a consistent set of responses, and the rating scales are the same for every evaluator. We found during the training session that after team members worked together a short time and interchanged perspectives, their worked together a short time and interchanged perspectives, their ratings became very consistent. This training session and the rotation of team members helped to insure consistency of results.

It is interesting to note that during the course of this past summer's field inventory, only WAAM scores for individual attributes were recorded. After completing the field season, the four major attributes were summed for each area, thus deriving a total rating on a scale of 1-28. These total scores were then compared to the wilderness study recommendations made by each working team in the field. Those areas with high WAAM scores (19-28)had been consistently recommended for wilderness study, and those with a lower score (1-17) had consistently received a recommendation to release them from further study. This, to some degree, indicates the validity of the WAAM system.

The WAAM system defines separate attributes for "natural integrity" and "apparent naturalness" whereas the *Wilderness Inventory Handbook* combines both into one attribute called "naturalness." We believe the natural integrity and apparent naturalness are different and that both have been called for in Section 2(c) of the Wilderness Act, thus both were used in this study.

It should be remembered that the WAAM system was developed as a tool to use in aiding the wilderness inventory. We do not intend the ratings to be used to indicate that an area is either suitable or not suitable for wilderness. This kind of decision can only be made with further detailed studies of area, public involvement, evaluation of other resource demands, recommendations, and finally action by Congress. The WAAM method will only produce attribute ratings which can be displayed for use by the public and other decision-makers, just as inventory data for other resources might be compiled and displayed.

We suggest that an interdisciplinary task force made up of BLM wilderness specialists, researchers and special interest groups be convened to define the criteria used in judging each attribute and to further clarify definitions. While the method developed by this task force may still be disputed by some reliability of these methods will be directly related to the level of [illegible] and understanding of [illegible] held by each field agent.

The area sample requires a fairly high degree of [illegible] because it specifically [illegible] field [illegible] difficult [illegible] estimated [illegible] costing [illegible] during the [illegible] together [illegible] worked [illegible] their [illegible] and the [illegible] of results.

It is [illegible] past [illegible] attributes [illegible] the [illegible] deriving a [illegible] more than [illegible] by each [illegible] scheme [illegible] study, and [illegible] received [illegible] this, to some degree, [illegible] system.

The main [illegible] integrity" and "[illegible] logistical [illegible] study.

It should [illegible] as a [illegible] intend [illegible] either [illegible] section [illegible] area, [illegible] recommendation [illegible] method [illegible] displayed [illegible] as [illegible] objectives.

As [illegible] ALM [illegible] groups [illegible] attribute and [illegible] developed by [illegible] critics, we believe that a consensus reached from a diverse array of professional and non-professional perspectives would be more credible than the present _Wilderness Inventory Handbook_ or the WAAM procedures and would receive a greater degree of acceptance by the public.

Regardless of the method used, it is very important that evaluators receive thorough and consistent training. All inventory personnel should understand the system itself and the procedures for implementing it.

The following suggestions for procedural improvement of the WAAM system are specific, and written for those readers familiar with the method. If you are not familiar with WAAM, we suggest you refer to Appendix A.

Naturalness and Apparent Naturalness

Column 1: Definition of Impacts

a. The type of human developments that are incorporated into this list should include all major categories of developments that occur in the general region--impacts commonly found in a forested mountain region are different than those in high plains grassland.

b. Grazing should not be included on this list in non-forested regions. It is extremely difficult to judge grazing with other forms of development to arrive at a total rating of the relative degree of effect on natural processes. This is due to the nature of this impact; while grazing commonly had a slight effect on a large acreage in each roadless area, the other forms of development--such as vehicle trails or reservoirs--had a major effect on only a small portion of each roadless area. Thus, it is difficult to devise a method to compare a low-density impact spread over a large area to a high-density impact that is local. We suggest that the effects of grazing on natural integrity an apparent naturalness be described in the narrative which accompanies the data worksheets.

Columns 6 and 7: Duration of Impact if Uncorrected and Feasibility of Correcting

a. Column 6 asks that evaluators record their judgment of the time period over which the impact will last if no corrective measures are taken, and column 7 asks for a judgment on the feasibility of correcting, given considerations of time, money and technology. This is an important question and is

recognized as such in the WIH as well as WAAM. We recommend that a set of guidelines be prepared to facilitate evaluators field judgment and to insure consistency between evaluators. The guidelines should be prepared with the technical assistance of engineers and include, for every type of impact, the normal duration and the costs, time, and technology necessary for correction. Realizing that corrective measures can be done in a variety of ways, the guidelines could be categorized under natural regeneration, and methods using hand or power tools.

Column 4: Area on Which Natural Integrity is Impacted

We found in most of the areas we inventoried that the degree of impacts in proportion to the total area was very slight. Many ratings fell in the "nil" category. If a more subtle degree of measurement were desired (in order to compare values between areas), it would be advisable to expand this measurement to include coefficients of the relative density and the spatial distribution of the impacts.

Column 9: Overall Influence on Apparent Naturalness

a. It is important for evaluators, in making this judgment, to take the perspective of the "average" visitor in terms of technical ecological knowledge.

b. Potential confusion can exist in this category when evaluators are first becoming familiar with this method. In Column 9 each of the impacts is rated according to how apparent the impact is to visitors to the impacted area, not to visitors who never came close to the impacted area. Once Column 9 is completed, evaluators must shift their perspective to arrive at an overall rating (Row A) for how apparently natural the entire roadless area (judging all impacts collectively) is to most visitors.

Much of the fieldwork necessary to apply WAAM in any given roadless area can be done in conjunction with the road inventory. It is very important, though, for evaluators to occasionally leave their vehicles behind and hike into It is helpful to do this in order to arrive at a judgment for the attributes of solitude and primitive recreation, and is essential in preparing a narrative description of wilderness suitability to accompany the WAAM ratings.

Field Procedures

Most of the suggestions we have regarding field procedures have been incorporated into previous sections of this evaluation. There are some procedures, however, which are general in nature and do not apply to any specific method previously discussed.

Prior to implementing the field inventory, we feel it would be beneficial to schedule some flight time for all inventory participants. This is particularly true for personnel unfamiliar with the study area. The purpose of such flights would be to obtain a general overview of the type of country they will be inventorying. This overview of the general topographic patterns and the density and spatial distribution of human development would provide an invaluable reference as the on-the-ground inventory proceeded.

Although we did not use helicopters or small planes for reconnaissance during this summer's inventory, we have discussed the relative advantages and disadvantages of doing so. For the most part, we feel that aerial reconnaissance would be inefficient for an inventory of this nature. The major advantage of utilizing helicopters would be in the initial phase of reconnaissance of each area. All major impacts and vehicle trails could be located and mapped in order to save time searching for them on-the-ground. The developments would still have to be advantage of doing this is minimal. In addition, be visited on the ground and documented. In addition, aerial reconnaissance prior to entering an area would tend to focus the inventory process on developed portions of roadless areas and not allow the on-the ground teams to explore the undeveloped portions and obtain a holistic sense of the wilderness attributes present there.

Another suggestion we discussed was the use of motorbikes to conduct the inventory. The advantages in using motorbikes include: less impact on the land, the ability to enter areas impassable to four-wheel-drive vehicles and they would be faster and more efficient than four-wheel-drive vehicles in most of the country inventoried. Disadvantages include: transportation to and from the areas (team would still require pick-up trucks to transport the motorbikes), inventory personnel would have to work individually and the process of mapping, recording, driving, and observing would require frequent stops (a working pair in a vehicle is much more efficient). In addition, strong high plains winds were often encountered and the process of constantly working with maps, field forms, and notes would be difficult on a motorbike.

Occasionally, during the course of this inventory, field teams would camp within or near the roadless areas. Although this was done for logistical purposes (when the areas being inventoried were a considerable distance from the nearest town)it has many advantages. Not only was travel time to and from the areas reduced, but the overall perception of an area's wilderness characteristics was clarified by prolonged periods

of visits. We recommend that future inventory personnel spend as many nights as possible camping in the areas they are inventorying. This will be tempered, though, by logistical constraints (chiefly the availability of gasoline) as well as personal perferences.

The final suggestions we have concern equipment. We have included an equipment checklist in Table 5.1 to facilitate planning for future inventories of this nature.

TABLE 5.1
WILDERNESS INVENTORY SUPPLIES AND EQUIPMENT

1. 4-wheel drive vehicle
2. extra gas tank(s) - two 5-gallon cans minimum, a 50-gallon drum would be preferable
3. radio - attached to vehicle (not portable)
4. vehicle jacks (2)
5. chains (2 sets)
6. blocks, boards, come-along and steel stakes (to get unstuck)
7. axe, bucket, shovel
8. basic tools (wrenches, pliers, screwdriver, etc.)
9. gloves
10. 35mm camera and film
11. Instamatic camera and film
12. binoculars
13. compass
14. clipboard (all-weather type)
15. pens and pencils (plain and colored)
16. Rapidiograph pen
17. white-out (for correcting mistakes)
18. map board
19. note pads
20. plant identification manual
21. plant and animal species checklist
22. topographic and planimetric maps
23. small scale map of entire study area including location of all roadless areas -cloth-bound
24. inventory data sheets (include extras) and field manuals

APPENDIX A

BLM WILDERNESS ATTRIBUTE ANALYSIS METHOD

A HANDBOOK FOR RATING WILDERNESS CHARACTERISTICS

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BLM WILDERNESS ATTRIBUTE ANALYSIS METHOD

INTRODUCTION

This report describes a Wilderness Attribute Analysis Method that was developed to assist in inventorying BLM roadless lands. It was developed by staff of the Wilderness Institute, Montana Forest and Conservation Experiment Station, University of Montana, in conjunction with wilderness specialists of the Miles City and Lewistown districts of the BLM in Montana. The method that is described here is based on the Wilderness Attribute Rating System (WARS) that was developed for the Forest Service RARE II process (Stankey et al, 1977) but has been modified considerably for application to BLM lands and to improve on certain portions of the WARS handbook. The method developed was used during the summer of 1978 for the Missouri Breaks Wilderness Inventory and was modified during the first 3 weeks of the field season by WI staff in conjunction with the field team indicated on the title page.

The Federal Land Policy and Management Act of 1976 directs the BLM to inventory all roadless lands and identify those having wilderness characteristics described in the Wilderness Act of 1964. Section 2(c) of the Wilderness Act defines those characteristics and from that definition the team that developed WARS identified four requisite attributes that are each rated on a 7 point scale. The BLM Wilderness Inventory Handbook (Sept. 27, 1978) interpreted the same section of the Act and identified 3 characteristics: naturalness, outstanding opportunity for solitude and outstanding opportunity for primitive recreation. For reasons described in the Missouri Breaks Wilderness Inventory, we feel that naturalness should be defined in an ecological sense as natural integrity and in the sense of a visitor as apparent naturalness. Since opportunities for solitude and for primitive recreation are always present to some degree in every area studied, and since both are useful measures of wilderness values, we feel that both can and should be used in the field. In later analyses attributes can be used individually or summarized in various combinations for presentation, but the basic attribute data will still be available.

The pages which follow in this handbook thus describe how to measure or rate these four wilderness Attributes:

1. Natural Integrity
2. Apparent Naturalness
3. Opportunities for Solitude
4. Opportunities for Primitive Recreation

It should be remembered that this method was developed as a tool to use in aiding wilderness inventory. It is not intended that the ratings be used to indicate that an area is either suitable or not suitable for wilderness. This kind of decision can only be made with further detailed studies of areas, public involvement, evaluation of other resource demands, recommendations, and finally action by Congress. The method described here will only produce area ratings which can be displayed for use by the public and other decision-makers, just as inventory data for other resources might be compiled and displayed.

Finally, the method was field tested during the summer of 1978 in the Missouri Breaks Wilderness Inventory. An evaluation of the method is given in that report and the WAAM ratings are discussed extensively in the results section of the report. The WAAM ratings were used to supplement field narrative descriptions and recommendations, not to replace them. They proved very useful in that regard and in fact lend considerable strength to the recommendations made by the field teams. Simple yes or no recommendations on whether or not an area should be further studied are often difficult to make when an area is marginal. The WAAM ratings at least illustrate which are marginal and which are clearly yes or no. We feel that this method is reliable and valid, but should be used with caution and discretion and only on a regional basis, as comparisons between vastly different regions would be very misleading.

REQUISITE ATTRIBUTE 1, NATURAL INTEGRITY
AND
REQUISITE ATTRIBUTE 2, APPARENT NATURALNESS

In the words of the Wilderness act, wilderness is "an area... retaining its primeval character...generally appears...affected primarily by the forces of nature."

Thus, the first two requisite wilderness attributes are "natural integrity" and "apparent naturalness." Each roadless area will be rated according to, (1) the degree to which it retains its primeval natural integrity in a pure ecological sense, and (2) whether it appears natural to most people.

Natural integrity is defined as the extent to which long-term ecological processes are intact and operating. All areas have sustained some level of impact from human activity (global-wide pollution, microclimatic changes, etc.). The intent here is not to establish some unrealistic rigid notion of purity but to rate the extent to which human influences have altered natural processes away from conditions one might expect had those impacts not occurred. This is not an "either-or" situation; the issue is the degree to which each roadless area reflects varying levels of environmental modification. Stated another way, each roadless area is rated as to the degree it possesses the Requisite Wilderness Attributes of Natural Integrity and Apparent Naturalness. This rating will be based on evaluation of several components of naturalness such as presence of vegetative manipulation, impacts of facilities, and so forth as explained in the following.

Worksheet 1 provides for description and evaluations of selected components of the requisite wilderness attributes of natural integrity and apparent naturalness. These components include all the man-caused influence which may have impacted the primeval natural integrity of a roadless area. Worksheet 1 provides (1) descriptions of possible impacts, (2) which impacts are present or absent, (3) evaluation of the effects on natural processes, (4) how large an area is impacted, (5) potential for separating the impacted portion from the rest of the area, (6) duration of the impact if left uncorrected and (7) feasibility of correcting the impact. Finally, the worksheet calls for evaluation of (8) the overall influence of these component impacts on the natural integrity of the area and (9) the apparent naturalness of the area.

A 7-category scale ranging from "none" to "extreme" is used to rate the impact of the components on the requisite wilderness attributes of natural integrity and apparent naturalness. Those areas with the highest numerical rating are the most natural, since they are the least impacted.

Apparent naturalness is closely related to natural integrity, but where that measure is primarily a matter of estimating the magnitude (the measurable extent) of an impact, apparent naturalness focuses on the importance of those impacts to most visitors.

There is the admitted problem here that managers are usually poor judges of how users or the general public perceives things. There is also the problem that it is unlikely there is such a thing as a "typical" person. "Apparent Naturalness" is a function of knowledge which varies greatly among individuals. Nnevertheless, raters should attempt to take the perspective of a non-professional in making these judgements. Raters should cross-check themselves on these ratings and, in some cases, may wish to solicit the views of citizens who could help provide the needed perspective.

Apparentness may include impacts which are seen, heard, or smelled. It also should be derived on the assumption that visitors are close enough to at least be potentially aware of it (in other words, the impact isn't hid away where no one will ever see it).

Remember: While we are asking whether or not an impact is apparent, this attribute is rated on the basis of perceived or apparent naturalness. Thus, if an impact(s) is judged to be highly apparent, the attribute is rated downward in apparent naturalness.

Definitions of Impacts

Column 1 lists the major categories of impacts to be described. It represents a condensed list, which will facilitate comparison of all areas. As needed, more can be added in an "other" category; however, excessive additions should be avoided.

1. Railroad. Include, and describe, all routes, whether abandoned or not. Include all constructed routes where earthwork and/or surfacing and drainage structures are involved

2. Utility Rights of Way. Include all energy (electric gas, oil, slurry, etc.), telephone, water, aqueduct and other linear transmission facilities and developed rights-of-way; or which include routes that have been cleared, graded, or both which are either apparent or require periodic maintenance which will perpetuate this apparentness.

Water Conservation. Include constructed range stock ponds, reservoirs, and other water-related improvements such as wells, water savers, water guzzlers, stock tanks, etc.

4. Vegetation Manipulation. Contour furrowing, plowing and s seeding, sagebrush spraying, burning, logging, etc.

5. Other Fixed Site Facilities. Include airports, sawmill sites, helispots, industrial facilities, electronic sites, snow survey stations, bridges, lookout towers, cabins,

recreation facilities developed on private lands, and other

non-linear facilities.

6. Fences. Both maintained and abandoned.

7. Constructed Trails. Include all that have resulted in any vegetative cover or soil changes. Do not include game trails.

8. Mineral Developments. Include all activities associated with surface or subsurface prospecting, developments, or extraction. Include vegetative, water, and ground impacts; i.e., tree clearing, acid poisoning of water, acid kill of vegetation or soil pollution , spoil piles, excavations, etc.).

9. Recreation. Include effects of use and management (i.e., trampling or soil compaction or erosion in developed or undeveloped campsites, impacts on soil and vegetation fromORV use, soil loss from hiking, climbing, or horse use on or off trails, pollution of water, damage to trees,etc.).

10. Grazing. Include effects of past and current grazing by livestock or pack and saddle stock. (Past soil losses, even though land has revegetated, vegetative changes, active erosion, water pollution, stock driveway problems, hillside terracing by grazing livestock, site deterioration, browsing of vegetation that has long-term effects, etc.).

11. Wildlife Management. Effects on area through management of wildlife, (i.e., over-browsing as a result of predator control; impacts caused by wildlife as a direct result of state season setting, kill restrictions, etc.; effects on nongame or endangered species as a result of management.).

12. Elimination of Native Plants or Animals or Non-Indigenous Plants or Animals. Include presence of exotic weed species introduced by livestock or its feed, introduced fish and animal species, effects of major plant or animal diseases which have affected naturalness. Do not include those species absent because of natural, successional change or those introduced by natural means.

13. Fire History. The extent to which vegetative change (species, age structure, successional stage) has occurred since the introduction of fire control. areas of low normal fire incidence may not deviate to as great a degree as areas where natural fires were frequent.

14. Air Pollution Effects. Most areas are affected to some degree by intensity, frequency, type and extent of air pollution. (Sources of air pollution are usually outside the roadless area, but impacts of air pollution may be present in the area).

15. Water Pollution. The public often perceives a lack of water pollution in roadless areas, even though technical information indicates that it does exist. Indicate the extent, frequency, type, and distribution of the pollution caused by human use, industry, livestock, leaching from mined areas, etc.

16. Occupancies. Habitations, cemeteries, etc.

17. Vehicle Trails. Trails created by vehicles which do not meet the BLM definition of road.

18. other

Definition of Evaluative Criteria and Rating Scales

The criteria for appraising the natural integrity attribute are shown in columns 2-8 of worksheet 1. Each will be explained separately as well as how the rating scales should be used.

Column 2: Presence:

This column documents whether each of the impacts listed in column 1 is present or absent on the study area regardless of the extent of the impact and its location. If there might be a small impact but the evaluator really is not sure, the scale alternative "Do Not Know" should be checked. However the evaluator should check with technical experts or persons familiar with the area before an "Absent" or "Do Not Know" box is checked in Column 1 for any impact. Once the "Absent" or "Do Not Know" box is checked, the evaluator is through with that impact. If the "Present" box is checked, the location of the impact is to be described on the supplemental pages of the worksheet.

Column 3: Effect of Impact on Natural Processes:

This column will record the evaluator's perception of the overall influence of each impact (if it was not eliminated in Column 2) on the natural processes of the roadless area. Each impact should be rated in terms of its influence on the natural processes of the impacted area only, and not in terms of the impact on the entire study area. Where there are closely spaced impacts, the intervening areas may also be affected.

Questions to be considered while making this rating include: has the impact accelerated or decelerated the rate of natural succession; has the plant species composition been altered; has the impact altered the animal life of the area; has water or air quality been affected; has it caused soil erosion or compaction; and other questions relevant to natural processes.

Using all this information in combination, evaluators should select that response (or scale) alternative in Column 3 which, in their professional judgement, best describes the situation. Is the present effect of the impact on natural processes "None", "Low", "Medium", "High", or "Extreme"? Raters should use the categories supplied below. When a situation does not clearly fit the specified categories, raters should use their best professional judgement and clearly explain the basis for their response on supplementary worksheet 1.

When making this rating , it is important that no attention be given to the items that will be considered in Columns 4 through 8. Each of these other evaluations (Columns

4 through 8) will be made separately as a part of the attribute rating system. THIS PROCEDURE MUST BE FOLLOWED WHEN ANY COMPONENT OF ANY ATTRIBUTE IS BEING RATED ON WORKSHEETS 1, 2, 3, or 4.

In sum, the current influence on the natural processes of the impacted area should be rated, and that only. A written explanation documenting the basis for the rating should be recorded on the appropriate space on a supplementary page for Worksheet 1.

Effect of Impact on Natural Processes (Column 3)

None - Although impact is present, affects on natural processes are either non-existent or so minimal as to be insignificant in any ecological sense

Low - Impact is present and measurable but only minor significance. Processes continue to operate largely uninterrupted

Medium - Impact has some significant affect, with natural processes disturbed to some extent

High - Impacts are significant with natural processes interrupted to a significant degree

Extreme - Impacts are very significant, natural processes either completely disrupted or at least substantially so.

Column 4: Area on Which Natural Integrity is Impacted:

This column records by decile group the percentage this impacted acreage represents of the total roadless area. In making this evaluation, remember that this percentage is to be determined only in terms of the impact on the natural integrity of the area actually impacted in that manner. Rate the impacted area according to the following categories:

Nil - Less than 1% of area affected
1 - 1-10% of the area
2 - 11-20% of the area
3 - 21-30% of the area
4 - 31-40% of the area
5 - 41-50% of the area
6 - 51-60% of the area
7 - 61-70% of the area
8 - 71-80% of the area
9 - 81-90% of the area
10 - 91-100% of the area

Column 5: Separability of Impacted Area from Whole Area:

This column designates (yes or no) whether the impacted area could be physically separated from the roadless area and have the area still remain a viable candidate area as defined in the inventory instructions. Special attention, therefore, needs to be given to the location and significance of each impact within the study area. Impacted areas in the center will be more difficult to separate than those on the periphery. Linear type impacts (e.g., old roads) would be more difficult to separate than a concentrated impact, such as an old logging sale. Each impact will be considered separately and then a composite-overall significance rating will be made on Row A for all impacts taken together. For each rating, a written explanation must be provided on page 2 of the supplementary worksheet pages to document the bases for each decision. If the "yes" box is checked for Column 5 on Row A of the worksheet to indicate overall separability, locate the location and extent of the impacts on your topographic maps. In order to apply this concept of separability, careful judgment must be used to avoid an attempt at gerrymandering all such impacts out of the area. It is emphasized that location and significance must be the determinants.

Column 6: Duration of Impact, if Uncorrected:

In this column, evaluators will record their judgement of the time period over which the impact will last if no corrective measures are taken. Use the time period categories given in column 6. Write an explanation for each rating in the space provided on the Worksheet 1 supplementary pages.

Column 7: Feasibility of Correcting:

In this column, professional judgement will be used to rate the feasibility of correcting all but minimal levels of the impact through management actions or natural processes. The key issue here is whether or not the natural ecological processes have been restored. For example, a naturally- reclaimed roadbed might still show evidence of cut-and-fill activity, but the natural processes originally disturbed by the action could have been recovered. This rating will be influenced by considerations of: costs, time and technology. All relevant factors, in combination, should be used when making the rating. Use rating scales and descriptors provided below. Write an explanation on the supplementary page for Worksheet 1 for a rating that does not follow the category descriptors supplied below:

Feasibility of Correcting (Column 7)

None	Impacts are virtually irreversible, given any reasonable constraint of time, money or technology
A little	Impacts correctable only with concerted

	applications of time, money or technology. Chance of successful correction is low.
Moderate	Impacts correctable with moderate investment of time, money or technology. Chance of successful correction is good with appropriate investment.
High	Impacts correctable with only limited investment of either time, money or technology. Chance of correction very good.
Very high	Impacts easily correctable, even with no investment. Chance of correction excellent.

Column 8: Overall Influence on Natural Integrity:

This is a summary column in which all of the information considered in Columns 2-7 are combined for one rating for each impact. The exception is that the rating made in Column 5 is ignored. These Column 8 ratings should be made separately for each impact as they influence the natural integrity of the entire roadless area. Use the rating categories and descriptors below as guides. Explain a different basis for any rating on the supplementary pages of the Worksheet.

Influence on Natural Integrity (Column 8)

None - Effects on natural processes, none or low only. Generally less than 15% of the area impacted. Duration of impact usually less than 12 years with high or very high feasibility for correction.

Very low - Effects on natural processes low. Generally less than 15% of the area impacted. Duration of impact usually less than 12 years but may be up to 30 years, with high or very high feasibility of correcting.

Low - Effects on natural processes, low or medium. Generally less than 25% of the area impacted. Duration of impact usually 12-30 years with high or moderate feasibility of correcting.

Moderate - Effects on natural processes medium. Generally between 25 % and 50% of area impacted. Duration of impact between

	12-30 years, with moderate feasibility of correcting.
High	- Effects on natural processes medium to high. Generally over half the area impacted. Duration of impact over 30 years, with moderate to little feasibility of correcting.
Very high	- Effects on natural processes high. Between 50% and 75% of area impacted. Duration of impact usually 30 years or more, with feasibility of correcting little or none.
Extreme	- Effects on natural processes high to extreme. often 75% of the area impacted. Duration of impact in excess of 30 years, with little or no feasibility of correcting.

After the Column 8 ratings are made, a composite-overall rating will be made on Row A for the entire area. Use the ratings and descriptors shown below for the overall rating of Natural Integrity; if another basis for a rating is used, provide an explanation on the Worksheet.

Overall Natural Integrity (Row A)

1 = All impact ratings are extreme, very high, or high

2 = All impact ratings are very high or high, none are extreme
3 = All impact ratings are high or moderate
4 = Most impact ratings moderate, with no more than two rated low or high

5 = All impact ratings low or moderate

6 = All impact ratings low or very low, none are none

7 = All impact ratings low, very low, or none

Column 9: Overall Influence on Apparent Naturalness:

The second attribute, Apparent Naturalness (Column 9), provides a measure of the degree to which the impacts documented in Attribute 1, Natural Integrity, are apparent to most visitors. For example, even though the entire roadless area has been affected by fire exclusion (resulting in successional changes, etc.), it is likely that few visitors would be aware of this impact. On the other hand, a spoil bank might be highly apparent.

To rate Apparent Naturalness, it is necessary that the evaluator take the perspective of an "average" visitor in terms of technical ecological knowledge. Each of the 18 impacts should be rated according to how apparent they would be to most visitors. Rate only the apparentness __to visitors to the impacted area__, not to visitors who never come close to the impacted area.

After the apparentness ratings have been made for each impact, make an overall rating for how apparently natural the entire roadless area is to most visitors; use Column 9, Row A. Use the overall rating scale and descriptors provided below. Provide a brief explanation of this rating on the supplementary pages of Worksheet 1.

Apparent Naturalness (Row A)

1 = Roadless area is obviously impacted in many sections, with the impacts readily apparent to virtually all visitors, regardless of knowledge.

2 = Roadless area contains impacts apparent to all but a few. Disruption is apparent in sight , sounds or smells.

3 = Roadless area apparently unnatural to most people, but evidence of unnaturalness usually restricted to one of the senses.

4 = Roadless area is viewed as natural by many visitors, but unnatural impacts apparent to many others nevertheless. Apparentness usually in terms of either sight, sound or smell.

5 = Roadless area apparently natural to most visitors but there are some impacts (sight, sound, or smell) apparent to some visitors.

6 = Roadless area apparently natural to most visitors, only limited clues of unnaturalness.

7 = Most visitors find roadless area apparently natural. Evidence of unnaturalness either absent or apparent only to the most knowledgeable.

Requisite Attribute 3:
Outstanding Opportunities For Solitude (1)

The Wilderness Act states that a wilderness "...has outstanding opportunities for solitude..." Elsewhere in the Act are other references to solitude as an important attribute of wilderness. Several studies of wilderness users further indicates the importance of solitude. Thus, opportunity for solitude is a requisite attribute of wilderness.

Solitude is defined as being isolated from the presence of others and from the developments and evidence of man. Solitude is a psychological state that varies from one individual to another - a crowd to one person may be solitude to another. However, the issue is not one of defining the relative human density levels of each area; that can be changed by management. Instead, the rating system focuses on those intrinsic features of the roadless areas that offer users outstanding opportunities for solitude-- size of the area, presence of vegetation, topographic screening, and so forth.

Features such as trails, trail heads, numbers of campsites and their distribution are not included. Such features can affect opportunities for solitude but, like human density, their impact on solitude is a function of management (e.g., by future closing or opening trails or campsites, controlling use ,etc.). Instead the components for evaluating the requisite wilderness attribute "outstanding opportunity for solitude," as called for in Worksheet 2, are: size, presence of topographic screening, vegetative screening, distance from the perimeter to the nearest all-weather road or human habitation, and degree of permanent off-site intrusions. Based on evaluations of the impact of these components, an overall seven-category rating is assigned to each area's potential to provide "outstanding opportunities for solitude." The seven rating categories range from "none" to "outstanding".

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(1) The specific wording of the Wilderness Act calls for "...outstanding opportunities for solitude or a primitive and unconfined type of recreation." We consider this to represent two distinct, yet related, attributes of the wilderness resource. In some areas, both attributes may be readily available while in others solitude is difficult to find but primitive recreation opportunities are abundant. The interpretation is that the attributes are not a matter of "either-or", but the relative degree to which each is present. Both are useful attributes for comparative purposes but they can be separated in later analyses.

Definitions of Components and Rating Scales

Worksheet 2 shall be used to rate Requisite Attribute 3, Outstanding Opportunities for Solitude. It will also be used to rate Requisite Attribute 4, the Opportunity for Primitive Recreation. Attribute 4 will be described in the following section.

In Worksheet 2, the components are listed down the left-hand column. Rows 1-5 are the components of Solitude and rows 6-9 are the components of Primitive Recreation.

The components and their associated rating scales are described below. To use the rating scales, circle the appropriate response alternative that most accurately describes the component being rated.

After all the components have been rated for the Solitude Attribute, make an overall rating of the entire roadless area on the 7-point scale at the bottom of page 1 on worksheet 2. IMPORTANT: If your overall rating is inconsistent with the ratings for the individual components, provide an explanation of the basis for your rating in the narrative. for example, if you feel an area has "outstanding" opportunity for solitude and most of the component ratings are "moderate" or "low" ratings, explain your reasoning.

The 5 components of the Solitude Attribute are as follows:

1. Size: Size of a roadless area when considered by itself is an inadequate measure of potential for solitude or primitive recreation. However, in combination with the other criteria, it is an important component of an area's overall potential. Moreover, with all else equal, a large area has more potential for solitude than a small one.

There is a danger in setting arbitrary size values for roadless areas and then rating their solitude on that basis. The most objective means to derive a size value, in this case, is to analyze the acreage of equivalent tentative roadless areas from the general region, and then segregating the data into quartile ranges. The analysis used in this study is described in Appendix 1.

Size is measured as the gross acreage of the tentative roadless area. the gross acreage of a roadless area contiguous to an existing Wilderness, Primitive Area ,or wilderness study area of another agency, is the total of the roadless area plus the established area.

SEE APPENDIX FOR QUARTILE SIZES.

2. Topographic Screening: This component represents the extent to which topographic screening offers opportunities for solitude. The assumption is that diverse relative relief in

the roadless area enhances opportunities for solitude by increasing opportunities for screening (by reducing extent of vision). However, in some cases excessively steep slopes can act to concentrate use in a few areas (travel corridors, lake shores). Inter-party visibility in such conditions could be very high. it is rated according to the following:

High	Roadless area contains a diversity of highly dissected topography that easily screens people from one another within short distances.
Moderate	Diversity of topography offers screening potential in at least half the area, may be limited or lacking in remainder.
Little	Rolling-type terrain, limited diversity of topography offers limited screening potential.
Minimal/None	Flat terrain, virtually no relief for screening, or topographic variation is so great that visitors are concentrated into small areas where inter-party visibility would be high

3. Vegetative Screening: This component represents the collective vegetative cover that offers opportunities for screening of parties from one another. In areas where vegetative cover is heavy, the sight of other people is reduced.

However, in some cases, excessively dense vegetation can act to concentrate use in those areas where openings for travel and camping are possible. Inter-party visibility in such conditions could be very high.

Dense	Most of the roadless area has dense vegetation, which screens people from one another, even within a quarter mile, but there is still sufficient opening to permit travel and camping without undue concentration.
Moderate	Vegetative screening is good in at least half the area, screening people easily within a quarter mile of one another; limited or no screening available in remainder.
Little	Less than a quarter of the roadless

	area offers vegetative screening; or, vegetation is so dense that it concentrates use in a limited area, increasing inter-party visibility.
Minimum/None	Open, virtually no vegetative screening throughout the area, or vegetative screening is so great that visitors are concentrated into small areas where inter-party visibility would be high.

4. Distance from Area Core (approximate geographic center) to Nearest All Weather Road or Occupied Residence: This is a measure of the potential for solitude and for escape from the evidence of man. On many BLM roadless areas solitude is more a function of distance to human activity than to the perimeter of the area. Measurement should be from the approximate center of the area to the nearest all weather road or occupied residence. If the roadless area is contiguous to an existing Wilderness or Primitive Area or to another roadless area, the entire roadless tract should be used to compute this rating. Use the following scale:

Low Potential	Less than 1 mile from core to all weather road or residence.
Moderate Potential	From 1 to 3 miles from core to all weather road or residence.
High Potential	From 3 to 5 miles from core to all weather road or residence.
Outstanding Potential	In excess of 5 miles from core to all weather road or residence

5. Permanent Off-site Intrusions: This includes off-site evidence of man's activities likely to be seen, heard or smelled by visitors from within an area such as transportation corridors. Aircraft, timber harvest operations, industrial developments, mines, drill rigs, lights or noise from a nearby city, etc.

None	No off-site intrusions near area.
Minimal	Some off-site intrusions may be near area but not perceptible to visitors from most of the area.

Some	Off-site intrusions perceptible, but relatively distant and generally not permanent. Some off-site intrusions are close by, but generally not permanent.
Many	Off-site intrusions are close by and permanent.

Overall Rating of Opportunity for Solitude: To determine the overall rating of solitude opportunity, examine the ratings given each component. Use the categories and descriptors outlined below. REMEMBER; If your overall rating for solitude departs from the guidelines presented below, explain your rating in the narrative.

1-	No opportunity	All 5 components rated in bottom category.
2-	Very low opportunity	Three components rated in bottom category, remainder rated only 1 scale position better.
3-	Low opportunity	Two components rated in bottom category, none in top category.
4-	Moderate opportunity	No components rated in bottom category, none in top category.
5-	High opportunity	Two components in top category, none in bottom category.
6-	Very high opportunity	Three components in top category, remainder no more than 1 scale position away.
7-	Outstanding opportunity	All 5 components rated in top category.

Requisite Attribute 4: Primitive Recreation Opportunity

The Wilderness Act states that wilderness "...has outstanding opportunities for...a primitive and unconfined type of recreation." Further definition is given to this kind of recreation by other wording in the Act prohibiting permanent improvements, motorized activity, human habitation, and other implied restrictions to protect the wilderness character of the area. Many of the recreation activities that take place in wilderness also occur in other areas, but wilderness conditions greatly enhance some of these activities for many users. Some of the characteristic primitive-type wilderness recreation activities are hiking, camping, fishing, hunting, cross-country skiing, winter camping and nature study.

Primitive recreation opportunity can be defined in terms of the types of activities it makes possible for users. Not all the specific experiences need be present at one time to have primitive recreation. The working definition which guides rating this attribute is:

> Primitive recreation is that which provides opportunities for isolation from the evidence of man, a vastness of scale, feeling a part of the natural environment, having a high degree of a variety of challenges and using outdoor skills. It is characterized by meeting nature on its own terms, without comfort and convenience facilities.

Ratings of the Requisite WildernessAttribute 4, primitive recreation opportunity, is based on four components; diversity of opportunity, and three aspects of challenge, (commitment or risk, difficulty of travel within area and difficulty of life support).

As with the other wilderness attributes, evaluations of the components are used to derive an overall 7 category rating for primitive recreation opportunity ranging from "none" to "outstanding".

Definition of Evaluative Criteria and Rating Scales

Procedures for rating this attribute follow those for Requisite Attribute 3, Outstanding Opportunities for Solitude. The criteria and rating scales are:

1. Diversity: Diversity of vegetation, fish and wildlife, terrain , and lakes and streams, and climate improves opportunities for a larger variety of primitive recreation activities. The response scale for this component is:

Very diverse	Roadless area has much diversity

	in nearly all above categories.
Moderate	Roadless area has only some diversity in above categories, or no diversity in some but much in others.
Little diversity	Roadless area mostly homogeneous in nearly all of above categories.

2. Challenge--Risk: The risk component is measured as the number and extent of challenging features such as dangerous animals, climatic disturbance, avalanche potential, terrain features (cliffs, quicksand, sink holes), fast-moving water, and a lack of dominant visual features on which to orient oneself. What constitutes a hazard is a function of knowledge and experience, but the definition rests on a common sense definition of those features that are commonly considered hazardous by most visitors. This is important in order to indicate the degree to which an area has potential to produce opportunities for risk-taking as a part of the primitive recreation experiences. The response scale for this component is:

Rare	Features commonly considered hazardous seldom encountered or only in a few scattered parts of the roadless area.
Few	Features commonly considered hazardous encountered in area.
Many	Features commonly considered hazardous encountered throughout the area.

3. Challenge--Difficulty of Travel Within Area: This component is measured as the type and extent of features and conditions in the area which affect the ability of visitors to travel within the area. It includes such features as; type of terrain (rolling, open, breaks, etc.), natural obstacles (water, vegetation), and trails or vehicle paths. The response scale for this component is:

Low	Rolling or open terrain, absence of breaks, lack of natural obstacles, presence of existing trails.
Moderate	Broken or dissected terrain, natural obstacles present, trails present.
High	extremely broken terrain, extreme

natural obstacles, few or no trails.

4. Challenge--Difficulty for Life Support: The life support component is measured as the type, number and extent of available natural amenities which affect recreation experiences (water, natural shelter, edible plant and animal species). It is also measured by the extent of pre-planning necessary for a person to visit the area for one day or more with average safety and comfort. The response scale for this component is:

Low	Available natural amenities make visits generally comfortable (e.g., water, natural shelter, edible species). No pre-planning necessary.
Moderate	Lack of some natural amenities increase the difficulty of using the area. Moderate advanced planning by visitor required for safety and comfort.
High	Very few natural amenities; most of life support components must be provided by users. Extensive advanced planning necessary for visitor safety and comfort.

Overall Rating of Primitive Recreation Opportunity:

To determine the overall rating of primitive recreation opportunity examine the ratings given each component. (Rating values for primitive recreation increase from left to right.) Use the categories and descriptors outlined below. REMEMBER: If your overall rating for primitive recreation departs from the guidelines presented below, explain your rating in the narrative.

1-	No opportunity	All 4 components rated in bottom category.
2-	Very low opportunity	Three components rated in bottom category, none rated in top.
3-	Low opportunity	AT least 2 components rated in bottom category, no more than 1 in top.
4-	Moderate opportunity	At least 3 components in middle category.
5-	High opportunity	At least 2 components rated in top category, no more than 1 in bottom.

6-	Very high opportunity	Three components rated in top category, none in bottom.
7-	Outstanding opportuniTY	ALL 4 components rated in top category.

APPENDIX B

WILDERNESS INVENTORY DATA WORKSHEETS

Worksheet #1

Specific Impact (or cause of impact)	Col.2 Presence			Col.3 Effect of impact on Natural processes			Col.4 Separability of impacted area from whole		Col.5 Duration of impact if uncorrected			Col.6 Feasibility of correcting					Col.7 Overall influence on natural integrity					Col.8 Overall Influence on apparant naturalness				
	Absent	Present	Unknown	Natural Processes Impacted	Natural Processes not impacted	Not Apparent to Evaluator	Yes	No	0-5	6-12	12	None	Low	Moderate	High	Very High	None	Low	Moderate	High	Extreme	None	Low	Moderate	High	Extreme
Impact Measurement																										
1) Railroad																										
2) Utility Rights of Way																										
3) Water Conservation																										
4) Vegetation Manipulate																										
5) Other fixed site fac.																										
6) Fences																										
7) Constructed trails																										
8) Other																										
9) Mineral Developments																										
10) Recreation																										
11) Grazing																										
12) Wildlife Mgmt.																										
13) Insect or disease cond.																										
14) Fire History																										
15) Air Pollution effects																										
16) Water Pollution																										
17) Occupancies																										
18) Elimination of native plants or animals or intro. of non-native																										
19) Other																										

Name of Area ______________ Code ______
Resource Area ______________, Acreage ______
Evaluators ______________

A.Overall rating for entire area

Name of Area____________ Code_____ Resource Area__________ Acreage_____ Evaluators__________

Components of Attributes	Opportunities for Solitude				Opportunity for Primitive Recreation		
Size	Very Low Potential	Low Potential	Moderate Potential	High Potential			
Topographic Screening	Minimal/ None	Little	Moderate	High			
Vegetative Screening	Minimal/ None	Little	Moderate	High			
Distance from Core to Nearest All-Weather Road Or Residence	Low	Moderate	High	Outstanding			
Permanent Off-site Intrusions	Many	Some	Minimal/ None				
Diversity of Opportunity					Little Diveristy	Moderate	Very Diverse
Challenge - Committment - Risk					Little	Some	High
Challenge - Difficulty of Travel					Little	Some	High
Challenge - Difficulty of Life Support					Low	Moderate	High

	Overall Rating Solitude							Overall Rating Primitive Recreation						
Overall Rating	None	Very Low	Low	Moderate	High	Very High	Out- standing	None	Very Low	Low	Moderate	High	Very High	Out- standing

Name of Area ________ Code ________ Resource Area ________ Acreage ________ Evaluators ________

	Supplementary Wilderness Attributes	Presence Present	Presence Absent	Overall Rating for Entire Area Insignificant	Overall Rating for Entire Area Infrequent	Overall Rating for Entire Area Significant	Overall Rating for Entire Area Outstanding	Overall Rating for Entire Area Unique	Description of Location, Significance, and Extent of Attributes in Area
1) ECOLOGICAL	Endangered or Threatened Species of Animals or Insects								
	Endangered or Threatened Species of Plants								
	Special Ecological Features								
2)	Special Geological Features								
3)	Scenic Values								
4)	Cultural Features								

Overall Rating	insignificant	infrequent	significant	outstanding	unique
	1	2	3	4	5

WORKSHEET "00"

Roadless Area (# & name) ______________________ Film Type(s) ______________

************ PHOTO INDEX **************

hoto ey	Direc-tion	Roll#	Pict. #	Initials	Location					Comments
					T	R	S	1/4	1/16	

Roadless Area (# & name) ______________________

Worksheet "0"

BLM Surface Quad Maps: ______________________

USGS Topo Maps (names): ______________________

Allottees: ______________________

VEHICULAR TRAILS & ROAD INVENTORY DATA

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Map Reference			Location			Status			Comments
Map#	Road Key	Photo Key	T	R	S	Built	Maintained	Used	

APPENDIX C

SECTION 603 OF THE FEDERAL LAND POLICY AND MANAGEMENT ACT

THE WILDERNESS PROVISION
OF THE
FEDERAL LAND POLICY AND MANAGEMENT ACT

BUREAU OF LAND MANAGEMENT WILDERNESS STUDY

SEC. 603. (a) Within fifteen years after the date of approval of this Act, the Secretary shall review those roadless areas of five thousand acres or more and roadless islands of the public lands, identified during the inventory required by section 201(a) of this Act as having wilderness characteristics described in the Wilderness Act of September 3, 1964 (78 Stat. 890; 16 U.S.C. 1131 et seq.) and shall from time to time report to the President his recommendation as to the suitability or nonsuitability of each such area or island for preservation as wilderness: *Provided*, That prior to any recommendations for the designation of an area as wilderness the Secretary shall cause mineral surveys to be conducted by the Geological Survey and the Bureau of Mines to determine the mineral values, if any, that may be present in such areas: *Provided further*, That the Secretary shall report to the President by July 1, 1980, his recommendations on those areas which the Secretary has prior to November 1, 1975, formally identified as natural or primitive areas. The review required by this subsection shall be conducted in accordance with the procedure specified in section 3(d) of the Wilderness Act.

Review; report to President.
43 USC 1782.

Report to President.

(b) The President shall advise the President of the Senate and the Speaker of the House of Representatives of his recommendations with respect to designation as wilderness of each such area, together with a map thereof and a definition of its boundaries. Such advice by the President shall be given within two years of the receipt of each report from the Secretary. A recommendation of the President for designation as wilderness shall become effective only if so provided by an Act of Congress.

Recommendations to President of the Senate and Speaker of the House.

(c) During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this Act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act: *Provided*, That, in managing the public lands the Secretary shall by regulation or otherwise take any action required to prevent unnecessary or undue degradation of the lands and their resources or to afford environmental protection. Unless previously withdrawn from appropriation under the mining laws, such lands shall continue to be subject to such appropriation during the period of review unless withdrawn by the Secretary under the procedures of section 204 of this Act for reasons other than preservation of their wilderness character. Once an area has been designated for preservation as wilderness, the provisions of the Wilderness Act which apply to national forest wilderness areas shall apply with respect to the administration and use of such designated area, including mineral surveys required by section 4(d)(2) of the Wilderness Act, and mineral development, access, exchange of lands, and ingress and egress for mining claimants and occupants.

Regulation.

Ante, p. 2751.

16 USC 1131 note.

16 USC 1133.